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Railway Age

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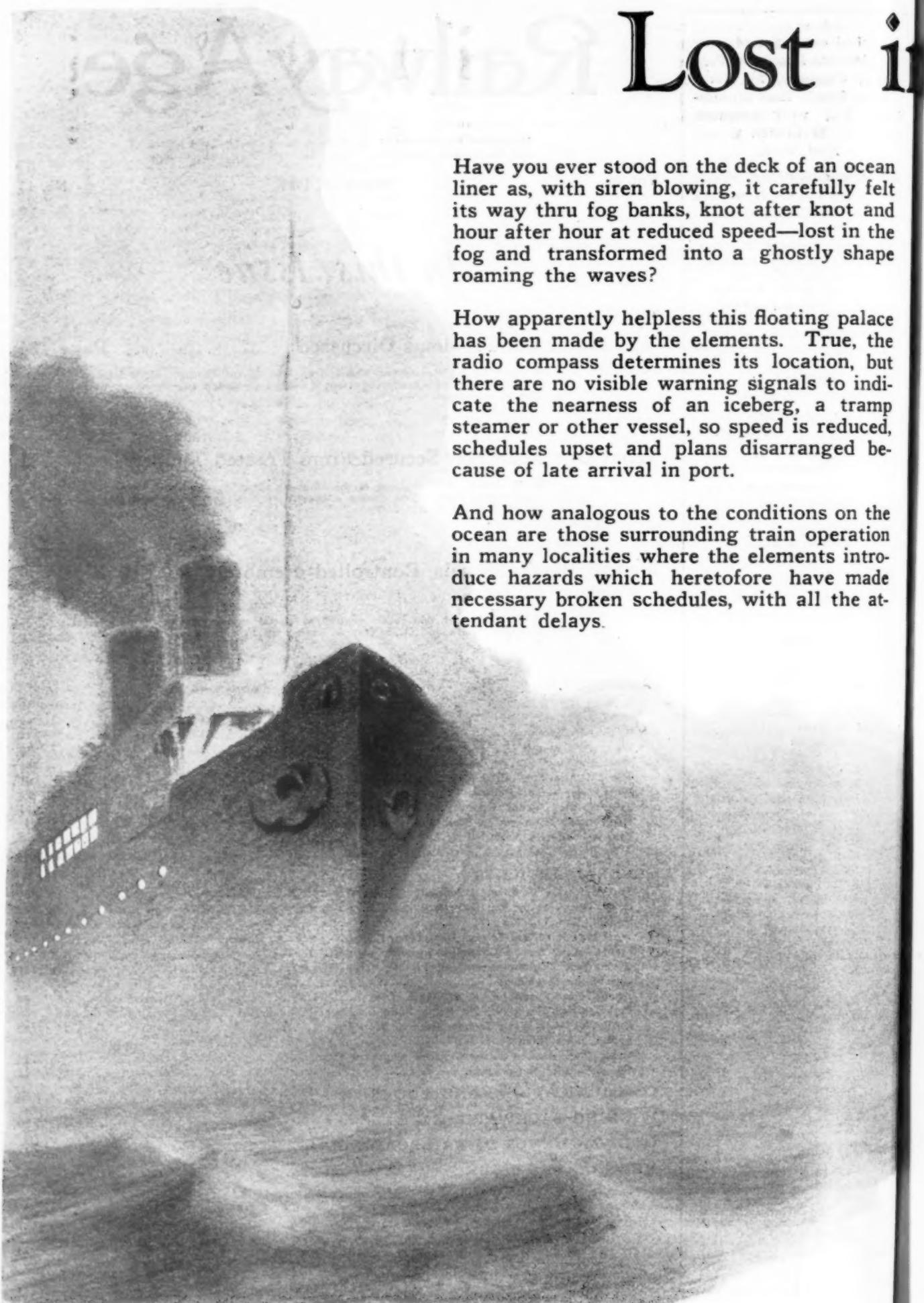
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Have you ever stood on the deck of an ocean liner as, with siren blowing, it carefully felt its way thru fog banks, knot after knot and hour after hour at reduced speed—lost in the fog and transformed into a ghostly shape roaming the waves?

How apparently helpless this floating palace has been made by the elements. True, the radio compass determines its location, but there are no visible warning signals to indicate the nearness of an iceberg, a tramp steamer or other vessel, so speed is reduced, schedules upset and plans disarranged because of late arrival in port.

And how analogous to the conditions on the ocean are those surrounding train operation in many localities where the elements introduce hazards which heretofore have made necessary broken schedules, with all the attendant delays.

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A Motor Coach-Railway Rate War

THE rates recently announced by a number of independent motor coach lines in the middle west are the lowest on record. These apply not only between the larger cities in the central part of the country, but in some instances also to points on the Atlantic and Pacific coasts. Two factors have had an influence on the situation. One was the consolidation of the two largest motor coach systems into one organization, with lines covering virtually all of the heavily-travelled routes from coast to coast. The struggle for business between this system and its numerous smaller competitors resulted almost immediately in substantial rate slashes. The other factor, which brought the rates for motor coach transportation from middle-western cities to Pacific coast points down to as low as or lower than \$40, was the establishment by the transcontinental railway lines of second-class rates, covering transportation in day coaches on certain slower trains, which were approximately the same as the old motor coach rates, in the neighborhood of \$50. Thus one thing leads to another. That the motor coach lines will be able to operate indefinitely on the basis of their present extremely low rates and still keep out of the sheriff's hands is open to considerable doubt.

What Weight of Rail?

THE design of track is far from the status of an exact science. This is the conclusion that must be reached by any engineer who is assigned the task of determining the justification for an increase in the weight of rail. Until the inception of investigations under the auspices of the Joint Committee on Stresses in Track, no concerted efforts had been made to carry out a truly scientific study of track, and owing to the fact that the data developed by this committee have shown how extremely complex are the stress relationships between the various parts of the track structure, little progress has been made thus far in applying them to practical problems. Furthermore, roadway officers are unwilling to accept stress as the only criterion for the determination of rail weights, not only because there appears to be no definite relation between stresses and failures, but also because other factors have an important bearing on the economics of track construction. But these are largely intangibles, incapable of expression in definite numerical terms, with the result that the actual conclusion must be "relegated to the realms of judgment," which may be taken as one explanation of why one road buys 110-lb. rail and another in the same territory, with almost identical traffic conditions, buys 130-lb. rail. Here is a virgin field for the formulation of basic principles that may serve as a useful guide in the solution of a complex problem.

Ultra-High Steam Pressures

THE history of American locomotive design has been one of increasing steam pressures, with consequent increased efficiency and improved starting characteristics. Owing principally to difficulties in supporting large flat firebox sheets, the limiting pressure in the conventional locomotive type boiler, made of carbon steel sheets, is generally conceded to be about 250 lb. With alloy steel sheets, somewhat higher pressures are practicable, the new Canadian Pacific 4-8-4 locomotives, for example, having a working boiler pressure of 275 lb. The next step involves the use of watertube fireboxes, as in the case of the "Horatio Allen" on the Delaware & Hudson, Baldwin locomotive 60,000 and New Haven locomotives equipped with the McClellon firebox. Pressures of 350 and 400 lb. are available in these locomotives. To secure the benefits of still higher steam pressures, the use of two pressure stages is usually necessary, if we may judge by an experimental locomotive now in service in Germany, and a new English express locomotive of the Royal Scott class, recently ordered by the London, Midland & Scottish. The latter locomotive is of the three-cylinder compound type, utilizing steam at 900 lb. per sq. in. pressure, obtained by indirect heat from the firebox. The boiler is designed with a high pressure drum, separate from the boiler proper and fitted with tubes for the passage of hot steam generated in a water tube firebox at 250 lb. Steam in the drum at 900 lb. per sq. in. is used in the high pressure cylinder, the exhaust from this cylinder then being mixed with steam from the low pressure boiler and passing on to the low pressure cylinders at 250 lb. It is planned to submit this locomotive, when completed, to a series of tests under service conditions, the results of which will be of much general interest.

Water Stations and Train Stops

WITHIN recent years one railway has closed down 70 water stations. Similar results have been attained on not a few other roads, with the result that literally hundreds of water stations have been abandoned. This has been made possible in part by the installation of larger locomotive tenders, giving the locomotives a greater "cruising radius". It has also been aided by the more careful location of stations to meet the needs of train operation. The first advantage that accrues from the closing of a water station is, of course, the elimination of expense for its operation and maintenance. Frequently this is the major, if not the sole objective; yet it is in reality secondary to the effect on train operation. Much emphasis is placed today on the importance of keeping trains moving and large expenditures are being made for facilities of one kind and another that will eliminate the necessity for stopping

trains. Yet one of the most common causes for the stopping of trains is not affected to the slightest degree by these expenditures—namely, that of taking water. As long as the trains are hauled by steam locomotives it will, of course, be necessary to stop these trains at intervals to enable the locomotives to replenish their supply of water. Yet it requires only the most casual observation on the average railway to demonstrate that many of the water stops made by freight trains are unnecessary and are the result of the fixed habit of many enginemen to stop for water at every station, even though they may require only a couple thousand gallons. With the tender capacity now commonly employed, this is no longer necessary and on some roads water service and transportation officers are conducting campaigns of education to eliminate unnecessary stops for this cause. Such campaigns involve little or no expenditure for additional facilities; in fact they permit the abandonment of facilities.

What Industry Will Be the Next Victim?

A WRITER in a recent issue of *Nation's Business* takes the federal government to task for its operation of steamships by the government-owned Panama Railroad, competing with privately-owned shipping. This steamship line, the writer points out, was first acquired by the government during Roosevelt's time as an accessory to the work of digging the Panama canal. This function completed, the government did not let go. During the war, as a war measure, the services of this steamship line were greatly expanded. The war ended, but the service continues and includes the handling of considerable business not destined for the Canal Zone at all. Whether the line is making a profit or not seems to be a moot question; the writer points out that "the profit and loss computations of government business enterprises do not include payments for taxes, insurance or interest, which are always big items on the expense side of private ledgers." The picture painted in this article is a sad one, but railroad men are thoroughly familiar with similar situations nearer home and will not be surprised. The Mississippi and Warrior river barge lines were started as a war measure and have been continued as an "experiment" ever since. Politicians and public servants, once they get an industry into their hands, entrench themselves well. They can never be shaken off as long as the only ones to protest their activities are those directly injured. Industry generally needs to adopt a standard of fair dealing which it is willing to fight for whether it has an immediate selfish concern at stake or not. Shipping interests which would like to have lower Panama canal tolls at the expense of the American taxpayer, or shippers and receivers of freight who patronize the government barge lines and do not protest at their competition with the railroads are inviting the spread of state socialism. Once it becomes clear that no individual industry will protest at the spread of socialism in other industries, then its advocates, to assure their ultimate victory, need only adopt the tactics of entering various fields one at a time. The failure of business interests generally to protest against government entrance into and participation in the transportation business offers to intelligent socialists a most suggestive line of attack. Business men who do not recognize and fight for a

principle when they have no immediate selfish interest at stake are encouraging a development which may turn to any one of them as its next victim.

The "Maintracking" Principle

THE original definition of a "maintracker," as outlined by the Baltimore & Ohio, was as follows: "A 'maintracker' is a train that is made up and dispatched from a yard or terminal for continuous movement to destination, or to a breaking-up yard, and, that, in its movement, has to pass through intermediate yards or terminals." With this definition as a basis, the installation of "maintrackers" has progressed on many railways far beyond the original conception of the plan. On one road, for example, where the loaded car movement is overwhelmingly in one direction, a "maintracking" plan is in successful operation in this one direction only. The return movement, consisting almost entirely of empty cars, is such that "maintracking" is not deemed advisable or expedient. On two other roads, both operating a maze of branches and secondary main lines, with many cross currents of traffic, "maintracking" has been applied with marked success, notwithstanding certain complexities involved. One of the chief advantages of the "maintracker" plan that has been brought out as it became more generally effective and thoroughly understood, is its adaptability. It fits in perfectly with extended engine runs. In fact, some form of "maintracking" is practically necessary for the successful operation of long locomotive runs. The principles involved are also adaptable to operations within yards and terminals, as well as for road movement. The idea of preparing working books for yards and other means of centralized control of engine movements in terminals is spreading rapidly. The chief principle of the "maintracker" plan is simple and logical, namely, that local supervisors, however efficient they may be, cannot be expected to know the operating conditions at every other point on the system, without help in the form of working instructions based on careful study. The increasing recognition of this sound and valuable principle in all phases of operation has had much to do with the increasing efficiency.

Waterways Versus Railways

DOCTOR H. G. Moulton, president of the Brookings Institution, Washington, D. C., unquestionably has given more study to the comparative cost of transportation by railways and waterways than any other economist in the country. His book, "Waterways Versus Railways," is recognized as the most comprehensive and authoritative work upon the subject. Doctor Moulton delivered an address on the proposed Great Lakes-St. Lawrence waterway before the Traffic Club of Chicago on March 21. A summary of his address was published in the *Railway Age* of March 23. He made some very interesting estimates bearing on the comparative costs of rail and water transportation, however, which were not included in the summary of his address which we published.

He estimated that the cost of providing a waterway of 27 ft. depth, and of making necessary harbor improvements and providing terminal facilities at ten cities on the Great Lakes, would be \$700,000,000. He

discouraged the belief that ocean-going vessels would use to any considerable extent a waterway of this depth. However, assuming that the waterway would be used to its maximum capacity, he estimated that the amount of traffic that could be handled on it annually in the average of 190 days that it would be open to navigation would be 41,000,000 tons. "That is what I call the theoretical maximum capacity," said Doctor Moulton, "assuming that there were ideal conditions and a steady stream of traffic moving just as fast as the boats could go through."

He estimated that three double-track, fully equipped freight railroads could be built from Chicago to Boston at a cost of \$260,000,000 each, or an average of about \$250,000 per mile of line, and that each of these railroads, operating throughout the year to its theoretical maximum capacity, could handle eight times as much freight as the proposed waterway. In other words, the three railways would cost only a little more than the waterway, and combined could carry about 24 times as much freight.

The wildest kind of claims have been advanced in support of the proposed development of inland waterways. Obviously, the burden of supporting these claims with evidence has been upon the waterway advocates, but they apparently have usually assumed that, unless somebody disproved their claims, the public should accept them and proceed accordingly. Doctor Moulton's estimates differ very widely from the claims of the waterway advocates, and we anticipate with interest what they will have to say regarding them.

Splitting the Cost of Highway Crossing Protection

A NEW idea on the distribution of the cost of automatic highway crossing protection has been gaining recognition during recent months. In view of the fact that such signals are required for the protection of the highway traffic, it would seem logical that the public should share in the expense for such improvements. In a paper presented before the annual conference of Public Utility Commission Engineers in Washington, D. C., and printed in abstract in the *Railway Age* for September 22, 1928, E. I. Rudd, chief engineer of the Public Utility Commission of Connecticut, stated that it would be more equitable if the cost of grade crossing protection were borne by the several parties interested, in the same proportion as grade separation is shared; approximately a "fifty-fifty" basis.

In the report of the Committee on Highway Crossing Protection of the Signal Section, A. R. A., presented at the recent convention, answers to a questionnaire indicated that only a few states had given consideration to the idea of bearing a portion of the cost of automatic highway grade crossing protection. In California, at existing crossings or those created by the construction of new railroad lines, the railroad bears the entire cost, but at crossings created by new streets, the city or highway commission bears the cost of installation, and the railroad the cost of maintenance and operation. In Michigan, the law provides that a share of the cost be paid by the township or city. In Minnesota, the highway department has voluntarily paid part of the expense. In Pennsylvania, the highway depart-

ment and the railroad must reach an agreement in each case, which is acceptable to the commission. In Canada 40 per cent of the initial cost of protection or separation, up to a maximum of \$25,000 is paid out of a grade crossing fund of the government, while the Board of Railway Commissioners also has authority to compel local authorities to contribute toward the cost of protection.

It is, therefore, evident that the thought is growing that the public, as user of the highways, should bear a proper share of the cost of automatic signals for its protection at railroad crossings.

Large Claim Payments on Fresh Fruits and Vegetables

WHILE the reduction of 5.6 per cent in total freight claims paid by the Class I carriers of the United States during 1928 is an indication of the efficiency with which the railways were operated, the magnitude of the claims paid on fresh fruits and vegetables mars the record. On 1,066,000 cars of fresh fruits and vegetables originated, the claims amounted to a total of \$9,406,278 during 1928, an increase of \$198,724, in the face of a net decrease in loss and damage of all commodities of \$2,155,816.

The relation between revenue and claim payments reflects an unsatisfactory feature of the fresh fruit and vegetable traffic. The Interstate Commerce Commission statistics for the first six months of 1928 show freight revenues of \$2,248,141,428 for all commodities, while the total claims paid during this period amounted to \$18,834,897 or about nine mills per dollar of revenue. On the other hand, the revenues from fresh fruits and vegetables amounted to \$109,750,000 and the claims paid totaled \$4,777,318, or 4.6 cents for each dollar of revenue.

The liability of fresh fruit and vegetable traffic to damage is obvious, but the readiness with which many shippers of perishable products seize upon every opportunity to file claims also has a great deal to do with keeping the percentage of perishable claims high. Certainly the class of service being rendered by the railways would seem to merit fairer treatment at the hands of these shippers and receivers.

The solution of the problem is difficult because, there are three distinct "points of contact," i.e., (a) at origin, (b) in transit and (c) at destination. With this in mind, the Committee on Freight Claim Prevention of the American Railway Association offers 10 suggestions to govern future activities. These include: Special fruit and vegetable claim conference committees, in which should be included bureau and carrier representatives specializing in the handling of this traffic; the co-ordination of the activities of these committees through the A.R.A. Committee on Freight Claim Prevention; co-ordinated activities of inspection bureaus; the national use of "flying squadrons" to oversee loading, stowing, packing, etc.; the stenciling of the inside dimensions on all cars used for fruit and vegetable loading; the expanding of the activities of the A.R.A. Freight Container Bureau to include loading; and the establishing of a committee of practical field men, selected from the East, Southeast, the Southwest, the Central West and the Pacific Coast territories, to study the matter thoroughly.

Reports of the Western Weighing and Inspection Bureau and the Moorhead Inspection Bureau, show that since 1923, decay, over-ripeness and field or orchard diseases resulted in 46.1 per cent of the claims from fresh fruits and vegetables, as compared with 16.1 per cent because of rough handling, the next largest group. The railroads have no control over decay, over-ripeness and field or orchard diseases, consequently they can do little to reduce claims from these causes. Perhaps the best way to reduce them is through crop inspection by federal and local government agents. Georgia passed a law which requires government inspection of fruits in order to protect the growers of good fruit and which, by reason of a rigid inspection of the orchards and the peaches in the packing sheds by government inspectors, resulted in the condemnation of 3,000 cars of diseased peaches this year.

Criticism Frankly Answered

IN compliance with a resolution passed at the 1927 session of the New Hampshire legislature, the Public Service Commission of that state has recently submitted findings in the investigation which it was directed to make into the reasonableness of service now furnished New Hampshire patrons of the Boston & Maine and into the future policy of that railroad in providing transportation within the state. To aid in carrying out this mandate the Public Service Commission employed a New York specialist in transportation studies and its own report to the legislature is based upon the findings of this specialist. President George Hannauer of the Boston & Maine in an address before the New Hampshire legislature on March 26 replied to the report.

The findings of the specialist were largely critical of the Boston & Maine's service and policies with regard to New Hampshire. He considered passenger train service, freight train service, employees, revenues and expenses, miscellaneous statistics, equipment and accidents. Briefly, for the example, the criticism of the passenger service is drawn from figures which compare the loss of traffic with the curtailment of service and sets forth that: "It is an unsolved problem if much or any of this diverted traffic can be restored by a more liberal policy on the part of the Boston & Maine in connection with its passenger service. It is absolutely certain, as shown in these studies, that no such policy has been given a trial. . . ."

In opening his defence of the Boston & Maine, President Hannauer characterized the report as "ill-considered and inaccurate" and pointed out that a misplaced decimal set the decline in passenger revenue per mile of road since 1923 at 1.3 per cent instead of 13 per cent, as would have been indicated in an accurate calculation from figures presented in the report. Nevertheless Mr. Hannauer continued, the commission accepted the conclusion that there had been a greater decrease in passenger train service than in passenger revenues whereas "only if the railroad had taken off two and one-half times as much mileage as it did, could the reduction in service have equaled the reduction in revenue."

In reply to the statement that no attempt had been made to recover passenger traffic losses Mr. Hannauer said: "The railroad has studied ways and means to restore passenger traffic to the trains. The automobile has attracted many persons who will never come back to the trains and our chief effort must be to hold the

present traffic. Some of the things which have been done are: Began speeding up trains in 1926 with good effect, and continued speeding up in 1927 and 1928; inauguration of through passenger service to Chicago and the west; improved track to give smoother rides and allow for higher speeds; rock ballasted to eliminate dust (and reduce cost of maintenance); as a test, added 600 miles daily of passenger train mileage in the most promising local territory within the last two years with no appreciable results; practically eliminated wooden coaches in main line service and obtained some improvement in our Pullman cars; electrically lighted 549 coaches, previously gas lighted; improved punctuality of trains till trains late are now a small fraction of what they were in 1923; inaugurated the "all expense tour" to stimulate tourist business, principally in New Hampshire; operated popular excursions at reduced rates; introduced motor rail cars and motor coaches to enable continuance of service in light traffic territory."

The commission's criticisms of the Boston & Maine were less severe in the other points considered, but for each an answer is found in Mr. Hannauer's address. The foregoing, however, will suffice for an example of a straightforward presentation of the railway point of view. Mr. Hannauer stated his case before the public representatives of the Boston & Maine's New Hampshire patrons—the representatives who had ordered the commission's inquiry, which if left unchallenged, might have influenced effective public opinion into hostility to the road. The incident affords an outstanding example of that high type of public relations activity which, in recent years, has become the policy of American railroads.

A Saving of \$700,000,000 in Operating Expenses

THE complete wage statistics of Class I railways for 1928, which were issued by the Interstate Commerce Commission a few days ago, reflect both the effect of the advances in railway wages which have been in progress throughout the last five years, and the effect of the improvements in plant, and the resulting operating economies, which have been made by the railways. Average earnings per employee last year were the largest in any year in history, excepting in 1920. The average hourly wage was the largest in history, excepting in 1920 and 1921. The total amount paid to employees in wages was, however, the smallest since 1922, the year of the shop employees' strike.

The reduction of the total payroll, in spite of an increase in average wages, was, of course, due to a reduction in the amount of labor employed. The average number of employees was the smallest since 1922, and was in fact, smaller than in any year since 1916, excepting 1922, and the number of hours of labor paid for was smaller than in any year since 1916, excepting 1921. Statistics giving annual data regarding number of employees, total hours of service paid for, total compensation, average hours worked per employee and average compensation are presented in the accompanying table.

The number of employees increased rapidly from 1916 to 1920, the increase during these years being almost 376,000. The increase in the number of hours of service for which employees were paid were rela-

tively much smaller during this period because the eight-hour day was introduced, and the average hours worked by each employee declined from 3,151 in 1916 to 2,693 in 1920. The number of employees, the average hourly wage and the total compensation paid reached their maxima in 1920, when the number of employees was 2,022,832; average earnings per employee were \$1,820, and total compensation was almost \$3,682,000,000. In 1921 and 1922 the number of employees and their average wages were reduced owing to the depression in business and to strikes.

In 1923 the railways handled the largest traffic in their history up to that time. The reductions in wages previously made were in effect throughout that year. Because of the aftermath of the shop employees' strike the amount of labor employed was somewhat inflated. The number of hours of labor paid for did not, however, become as great as prior to 1921, and therefore 1923 may fairly be regarded as the year in which the railways made a new start after having borne the effect both of war-time conditions and of the severe depression of business that came in 1921. The changes in the factors affecting the total payroll that have occurred since 1923 are, therefore, highly interesting and significant.

In 1923 the average employee was paid for 2,653 hours of service, received 61 cents an hour, and earned \$1,617. The average hours for which each employee has been paid annually have declined since then, owing largely to increases in the speed of trains and to other changes which have reduced overtime. The average number of hours for which each employee was paid in 1928 was 2,598, the average wage paid per hour was 65.5 cents and the average earnings per employee was \$1,702.

The amount of freight business handled by the railways in 1928 was greater than in 1923. The amount of passenger business was much less; but the amount of passenger service rendered was about the same, because the carriers have been unable to reduce passenger service as their passenger business has declined. Although, however, they actually rendered more service in 1928 than five years before and paid higher average wages, the total compensation paid by them to their employees was about \$185,000,000 less than in 1923. Attention already has been called in these columns to the fact that the operating expenses of the railways were about \$473,000,000 less in 1928 than in 1923. Comparison of the net reduction of total compensation paid to employees with the total reduction in operating expenses shows that only about one-third of the total reduction in operating expenses was due to the decline in the total payroll, while about two-thirds of it was due to reductions in expenditures for fuel, materials and supplies, etc.

But the actual reduction in the total amount of wages paid was small compared with the saving that was effected through the reduction in the total amount of labor employed. The average number of employees in 1923, was 1,857,674, and in 1928 only 1,656,289, a reduction of 201,385. The number of hours of labor paid for in 1923 was 4,928,651,132, and in 1928 only 4,302,356,000, a reduction of more than 626,000,000 hours, or almost 13 percent as compared with 1923. If in 1928 the railways had paid the average hourly wage of 1928 for as much labor as they employed in 1923 their total payroll in 1928 would have been \$410,000,000, greater than it was. Instead of being only \$2,819,000,000, it would have been about \$3,230,000,000, or larger

than in any previous year in history, excepting 1920. About 92½ per cent of the total wages paid are chargeable to operating expenses, the remainder being chargeable to capital account. Therefore, the saving in operating expenses due to the reduction in the amount of labor employed in 1928 as compared with 1923 was about \$390,000,000.

When the actual reduction during these five years of about \$300,000,000 in other operating expenses, and the constructive saving of about \$390,000,000 in the cost of labor chargeable to operating expenses are considered together, they disclose that the operating economies effected during the last five years have been much larger than the published statistics of operating expenses disclose—that, in fact, in 1928 as compared with 1923 they aggregated not far from \$700,000,000. In other words, the operating expenses of the Class I railways would have been about this much larger in 1928 than they actually were if they had not reduced the amount of materials and fuel consumed by them

Employee Statistics—Class I Railways, Excluding Switching & Terminal Companies

Year ended Dec. 31,	Number	Total hours	Total compensation	Hours per employee	Average hourly compensation	Average wages per year
1916	1,647,097	5,189,790,716	\$1,468,576,394	3,151	\$0.283	\$ 892
1917	1,732,876	5,437,976,803	1,739,482,142	3,138	0.320	1,004
1918	1,841,575	5,701,417,385	2,613,713,351	3,096	0.458	1,419
1919	1,913,422	5,032,493,422	2,843,128,432	2,630	0.565	1,486
1920	2,022,832	5,446,740,533	3,681,801,193	2,693	0.676	1,820
1921	1,659,513	4,147,318,574	2,765,218,079	2,499	0.667	1,666
1922	1,626,834	4,311,097,145	2,640,817,005	2,650	0.613	1,623
1923	1,857,674	4,928,651,132	3,004,071,882	2,653	0.610	1,617
1924	1,751,362	4,534,878,818	2,825,775,181	2,589	0.623	1,613
1925	1,744,311	4,531,361,471	2,860,599,920	2,598	0.631	1,640
1926	1,779,275	4,671,735,589	2,946,114,354	2,626	0.631	1,656
1927	1,735,105	4,519,281,339	2,910,182,848	2,605	0.644	1,677
1928	1,656,289	4,302,356,000	2,818,749,132	2,598	*0.655	1,702

* Partly estimated.

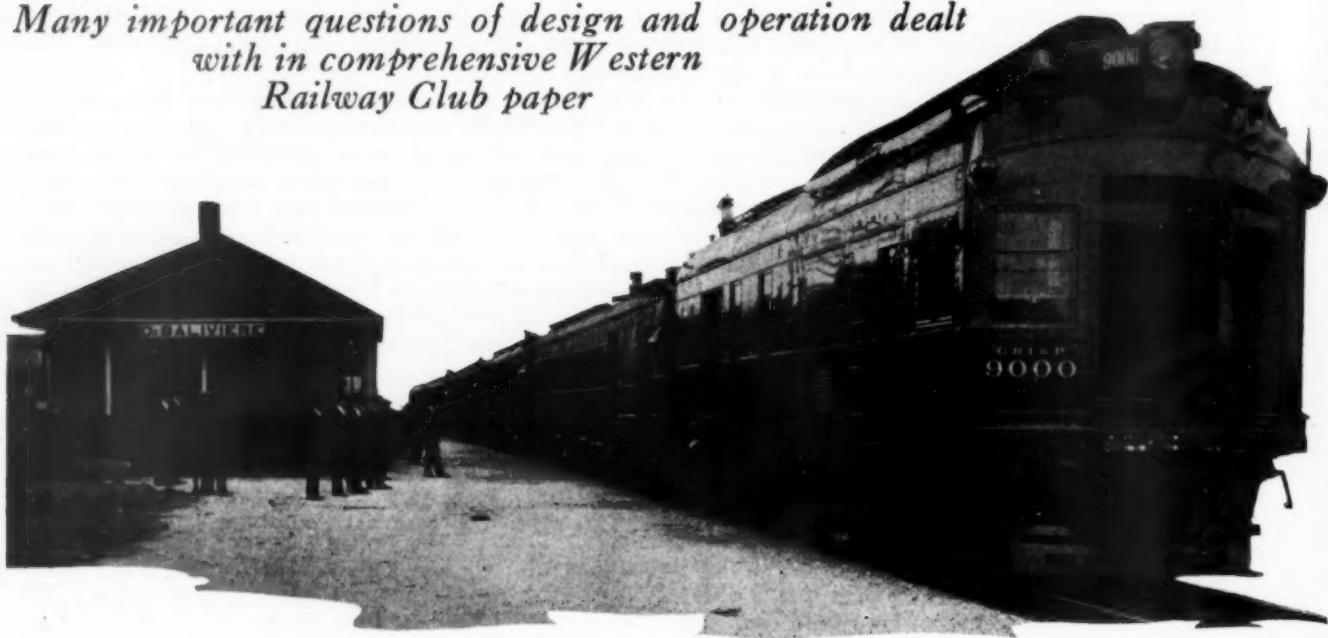
and secured in many cases reductions in the prices of materials and fuel, and if they had employed as much labor as they did in 1923 and had had to pay the average wages they actually did pay in 1928.

How have the results of these gigantic economies been shared between the railways, their employees and the public? The railways, as one necessary means to the achievement of economies, expanded and improved their properties by increasing the investment in them about \$4,000,000,000, and earned about \$210,000,000 more net operating income in 1928 than in 1923, or enough to pay a return of slightly more than five per cent upon the increased investment. About 200,000 employees were thrown out of work and had to seek employment elsewhere; but the remaining employees received about \$195,000,000 more in wages than they would have received if paid the average wages of 1923. Increased taxes took \$57,000,000 of the saving. The public paid the railways \$248,000,000 less in passenger fares and about \$64,000,000 more in freight rates than in 1923. The increase in freight earnings was entirely due, however, to an increase in the amount of freight business handled, because if average revenue per ton per mile had been as great in 1928 as it was in 1923 the public would have paid in 1928 about \$152,000,000 more for its railroad freight transportation than it actually did.

Thus it will be seen that the railways, those of their employees that were not thrown out of work, and the public all shared in the benefits of the vast economies in operation effected; but that the public received the lion's share of the benefits.

Rail Motor Car Problems Discussed

Many important questions of design and operation dealt with in comprehensive Western Railway Club paper



AT the regular monthly meeting of the Western Railway Club, held at the Hotel Sherman, Chicago, Monday evening, March 18, E. Wanamaker, electrical engineer of the Chicago, Rock Island & Pacific, read a paper on "Rail Motors" which presents a highly pertinent and comprehensive treatment of this subject. The paper, which was too long to be used in its entirety, was divided into 14 separate sections constituting in effect, a treatise on the design, construction, operation and maintenance of motorized rail equipment.

Following a general introductory statement, Mr. Wanamaker defined what is meant by rail motors, and analyzed the various types, explaining their limitations and the service in which each can best be used. The succeeding three sections were devoted to rail motor design, rail motor fuels and the reclamation of crank case oil. Some suggestions in connection with the purchase of rail motor equipment were then made, followed by sections on operation, maintenance, and rail motor accounting. The next section was devoted to test data relative to Rock Island Motor No. 9001, and the paper closed with a discussion of the probable future of rail motors. Abstracts of selected sections will be published in this and subsequent issues of the *Railway Age*.

Rail Motors

By E. Wanamaker

Electrical Engineer, Chicago, Rock Island & Pacific, Chicago

After about 25 years of experience and development work, many of those thoroughly conversant with the situation feel that motorized rail equipment of the proper design has proved an economical practicability in rail service. Rail motors, interpreted to mean internal combustion engines together with their transmission and control equipment as used to propel or move rolling stock on the rails, may be classified as follows:

Type A—The small bus type weighing approximately 30 tons or less, equipped with gasoline engine and usually with a mechanical transmission. However, in the larger cars of this type the electric transmission is the most suitable. This type of car, as the name implies, is of the bus type of construction and does not conform in any way, couplers or otherwise, with A. R. A. standards.

Type B—Rail motors built to conform to A. R. A. specifications, with such necessary modifications as will enable the user to reap the benefits of light construction necessary to the economical operation of equipment of this type. This type of equipment will ordinarily weigh from 30 to approximately 60 tons, depending on the purposes for which it is used, and should average proportionately in power-plant capacity from approximately 125 hp. for 30 tons, to 300 hp. for 60 tons. The fuel burned in this equipment may be either gasoline, distillate, or light oil.

Type C—Rail motors and power units built to conform to A. R. A. specifications ranging in weight and power from 60 tons and 300 hp. upward. The fuel burned in these equipments may be either gasoline, distillate, light oil, or Diesel oil, depending upon the class of service in which used and the requirements of that service.

Type D—Rail motors designed and built for light local freight and switching service.

The detailed design of Type A equipment may be so varied as to adapt it, first; for very light traffic, handling passenger, express, baggage and mail according to the service requirements; second; for superintendents' inspection cars, etc.; third; for special work and test equipment. Type A rail motor equipment is usually not designed or built with sufficient strength to permit its being handled in trains.

The detailed design of Type B equipment may be varied to meet the requirements of the following classes of service: first; light weight, low-power equipment of this type suitable only for light passenger traffic; second; heavier-powered equipment of this type suitable for local, main and branch line passenger service. This equipment is capable of hauling a trailing load depending upon physical and service conditions.

The detail design of Type C equipment may be varied to meet the requirements of the following classes of service: first; for local, branch and main line passenger service, hauling a trailing load if necessary, depending upon physical and service conditions; second; for local, branch and main line freight and mixed service, also hauling a trailing load, dependent upon physical and service conditions; third; light, high-speed passenger service; fourth; light suburban service.

The detail design of Type D equipment may be varied to adapt it to several classes of service: first;

for light switching service at shops, remote interchange points and industry switching; second; the heavier types of this equipment are suitable for heavy industrial switching, terminal and light classification yard switching.

Points to Consider In Rail Motor Purchases

A railway mechanical officer thoroughly familiar with the construction, maintenance and operation of steam equipment, confronted with the task of selecting motive power or rail equipment driven by internal combustion engines, finds that he is opening a new book full of strange terms and phrases. He usually starts his preparation for the selection of engines and appurtenances suitable for his own particular needs, by an investigation of railway equipment similar in a general way to what he has in mind with side-line inquiries into other fields where internal combustion engines are used.

At the outset his groundwork of information consists of a fair general knowledge of how the engine in his own automobile is built and a somewhat diffident idea as to how internal combustion engines are also used in boats, power stations and aircraft. His most solid ideas are, however, usually based on the automobile.

As his investigation proceeds he finds that there are all sorts and conditions of engines, which in most ways bear only the faintest familiar resemblance to each other and are each partially suited to its own class of service and decidedly limited when moved into any field other than those for which they were designed. He becomes familiar with ships' engines weighing 200 lb. for each rated horsepower, and with racing aviation engines weighing 2 lb. for each rated horsepower. Obviously, he will not try to adapt either the extra heavy marine engine or the extra light aviation engine to rail motor service, and his field of investigation narrows down to equipment wherein a horsepower can be obtained from a weight of prime mover he can carry around on wheels, and which is able with proper factors of safety to insure reliability in operation under the exacting conditions imposed by railway requirements.

In this class of engines he finds modified light-duty marine engines, overgrown automobile engines and engines specially designed for railway work. With the field of inquiry so narrowed, the investigator will usually either throw himself entirely on the mercy of some manufacturer of established reputation or he will set up

for himself standards of comparison and check the various equipment available or proposed against these standards.

In order to come within the space and weight limitations of conventional rail equipment and still develop sufficient horsepower to be able to make attractive promises in regard to performance, some railway equipment builders have been tempted to go to extremes and to take the maximum possible horsepower from a given size engine. This is sometimes done by running the engine at higher speeds than experience shows to be good practice and sometimes by the use of higher mean effective pressures in the cylinders than is consistent with long life and low maintenance cost.

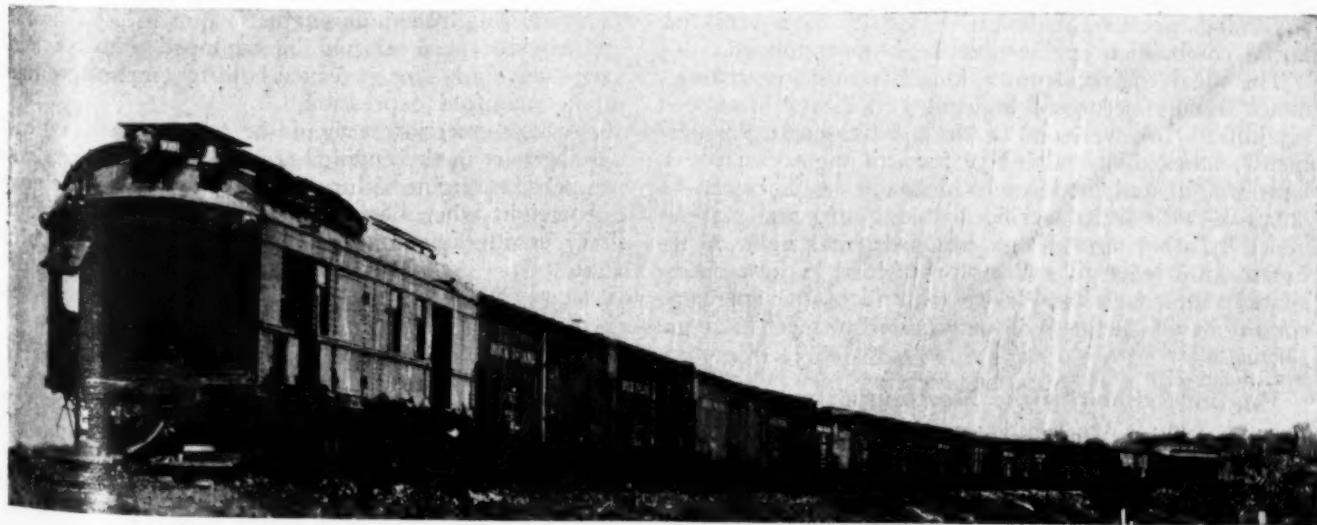
The first standard of comparison needed by the investigator is, therefore, one by which he can determine whether or not an engine is rated at a reasonable horsepower in relation to its size. Engine speed is limited by the average rubbing speed of the pistons in the cylinder and experience has proved that 1,500 ft. per min. is the best possible balance between excessive size, weight and cost on the one hand and excessive wear on the other hand. The term used to indicate cylinder pressures in internal combustion engines is "brake mean effective pressure." The value of this term is obtained by multiplying the mean effective pressure, shown on an indicator card, by the mechanical efficiency of the engine. A brake mean effective pressure of 90 lb. per sq. in. is conservative design; a higher pressure leads to the expectation of high maintenance cost. A quick check on these two vital factors in the rating of an engine is to square the cylinder bore in inches, multiply by the number of cylinders and then multiply by 0.8. The result is a reasonable horsepower rating.

This applies to gasoline and distillate engines using the spark-plug method of ignition and is not intended to apply to solid-injection oil or Diesel engines.

In the case of a six-cylinder engine with a 7-in. diameter cylinder, this would give us $7 \times 7 \times 6 \times 0.8 = 235$ hp. In the case of an 8-cylinder engine with 8-in. cylinders, this would give us $8 \times 8 \times 8 \times 0.8 = 410$ hp.

If the horsepower rating of an engine is much above that obtained by this simple formula, the builder has exceeded the best practice either in piston speed or cylinder pressure and the user must expect to pay for that excess in maintenance cost.

It should be remembered that light-weight pistons



Double-Power-Plant, Gas-Electric Rail-Motor Car Pulling a Local Freight Train on the Rock Island

and connecting rods such as would obtain in engines of small cylinder displacement can be successfully operated at higher rotative or engine speeds than can engines having heavy pistons and connecting rods with correspondingly larger cylinder displacement, for the reason that the pound or hammer blow on the wrist-pin bearing, connecting-rod bearing and main crank-shaft bearing, occurring at each reversal of direction of travel of the piston, increases with the weight of the reciprocating or moving parts, namely the pistons, wrist pins and connecting rod assemblies. Therefore an increase in the weight of the piston correspondingly increases the load on the wrist pin, wrist-pin bearings, connecting rod, connecting-rod bolts, bearings, crank shaft and main bearings, and these parts must be amply protected by increasing their strength proportionately, which obviously is a cumulative factor.

In view of the foregoing it is evident that if an engine is to have long life and low maintenance cost it is most essential that the rotative speed of any rail motor internal-combustion engine should never be too high for the cylinder displacement and the bearings, connecting rods and wrist pins. It is desirous to focus attention on this fact for the reason that some manufacturers are prone to increase the horsepower capacity of their engines by increasing the rotative speeds, thus enabling them to undersell a manufacturer who has built and is marketing a correctly proportioned engine, it being evident that a light engine run at high speed will give a greater horsepower output than the same engine operated at a lower rotative speed; hence the selling cost per horsepower of the high speed engine will be much less than the selling cost per horsepower of the well proportioned engine which is designed, not to establish a low selling cost, but to insure to the buyer long life and low maintenance cost such as is necessary for rail work.

Generally speaking, when comparing internal-combustion engines for rail service it is well to bear in mind that no one manufacturer has any secret hokum or process by which he can take the same cylinder displacement and operate at a higher rotative speed than his competitor without producing a shorter life and higher maintenance cost.

It is also essential to bear in mind that the smaller the cylinder displacement the greater the permissible rotative speed, and the larger the cylinder displacement the lower the permissible rotative speed, provided, of course, that in any case the many well-known rules governing mechanical design, especially as regards internal combustion engine practice, be not violated.

The ideal engine, from a long life and low maintenance standpoint, would logically be a heavy low-speed machine. However, one of the most essential requirements, other than reliability, for rail motor service is light weight and moderately high speed. This can be obtained with little sacrifice of long life and maintenance by a balanced design which depends upon an intimate knowledge of rail motors, which in turn necessitates a thorough familiarity with all of the operating conditions which they will be required to meet in actual service.

Engine Reliability the Most Important Factor

The most important consideration in the selection of an engine for railway service is reliability. Fuel economy, compactness, light weight and flexibility in operation are of value but they must not be allowed to outweigh reliability. The number of moving parts

should be kept as low as possible and the necessary moving parts should avoid chains and bevel gears and other "monkey" motions recognized as subject to rapid wear. Accessibility of working parts should be considered seriously and the investigator should satisfy himself that the engine builder has kept all pumps, governors, ignition devices and other accessories in locations where they will not interfere with easy inspection and adjustment of the engine bearings and valve mechanism.

It must be remembered that an engine in railway service is in heavy duty and that its working parts cannot be kept in the perfect condition which will insure freedom from service failures, if they are hidden away in inaccessible crank cases covered by accessories. The engine construction should be examined to see that all operations which are a part of unavoidable routine maintenance can be readily carried out. As an example of this, it should be possible to remove one cylinder head, clean out carbon, regrind valves and reassemble, in the layover period between runs. This can only be done if the engine design allows the removal and replacement of the cylinder head without disturbance of other cylinder heads, exhaust or intake manifolds, ignition devices or valve operating mechanism. The engine accessibility should be in keeping not only with the engine design, but with the various major and minor duties the engine is going to be called on to perform. This statement requires some explanation.

If, in the general car design selected, it is conceded that the principal object in having an engine is to propel the car and that auxiliary functions can be moulded into the car design as a whole, the engine accessories can be few and simple. They will usually consist of lubricating-oil and water pumps, a simple overspeed governor, a fixed spark ignition device and a throttle control. If, however, auxiliary functions such as the charging of the storage battery at a certain rate or the operation of the air compressor without attention of the engineman, are allowed to rule, the car design and the propulsion of the train is made a secondary matter, and the engine will require special accessories. For example: an engine which is required to operate the air compressor when idling at low speed should be equipped with a special idling governor which will prevent the engine stalling when the compressor starts and running away when the compressor stops. Also, an engine which is to drive the car through a transmission requiring maximum engine torque at less than normal engine speed, should be equipped with an automatic spark advance governed both by engine speed and intake manifold depression.

In this connection it should be remembered that each moving part in the engine accessory group carries with it a possible engine failure and this fact should be given due weight when deciding on the desirability of auxiliary engine functions which are perhaps of doubtful value.

Electric Transmission Essential

At the present stage in the development of the internal combustion engine as railway motive power, an electric transmission between the engine and the car wheels seems to be unavoidable. Little variation will be found in the essential parts of the electric transmissions investigated. The transmission will almost invariably consist of a generator connected to the engine shaft, one or more traction motors connected with

the car wheels, and an auxiliary generator or exciter built onto the main generator. The main generator and the traction motors are the transmission. The exciter serves to energize and control the field coils of the main generator and usually to charge the storage battery. The transmission control is not a part of the transmission proper but is external to it and serves to connect the traction motors to the generator and to regulate the generator voltage in such a manner that the entire rated horsepower of the engine is available as tractive force at any and all car speeds within the range of ordinary operation, subtracting, of course, the various losses in the transmission itself.

That part of the transmission control which is involved in the motor connections (grouping the motors in series or parallel to take advantage of the high efficiency range in generator current and in connecting the motors for forward or backward motion) consists of a number of switches which may either be mounted on a drum and moved with a lever as in the familiar "K" or street-car control, or may be separate units operated by air pressure, or the storage battery, or by both.

The choice in the type of control switches will depend largely on local conditions though the "K" type drum controller is preferred in the great majority of cases on account of its greater simplicity and the fact that it has few moving parts, and also because when trouble does develop with any of the switch points, the nature of the trouble is self-evident and the defect easily corrected by those not sufficiently familiar with intricate electrical devices to service the automatic or semi-automatic mechanisms employed in remote control.

Remote control is, however, employed in special instances where peculiar operating conditions justify the added complication and higher cost.

It is in that part of the transmission control that governs generator field strength that the electrical inventors have run wild and it is concerning that part of the control that most of the salesmen's claims are made. These claims remind one of a recent advertising campaign which was carried out in an attempt to sell an entire automobile on the strength of a trick horn button.

All of the generator field controls or voltage controls obtain exactly the same results when they work and therefore the careful investigator will probably favor the simplest and most reliable. The generator field control almost universally used and the only one not subject to failure on account of relays and other delicate electrical devices is one using a differential field on the exciter, through which the traction-motor current is carried on its way from the generator to the motors.

The auxiliary devices on the rail motor—the air brakes, lights and warning signals—ordinarily take power from the main power plant. This means that the air compressor is driven by an electric motor and that the storage battery is charged either from the main generator or from the exciter. The usual method of driving the air compressor is to connect its motor to the main generator. This method requires that the engine be run at half normal speed or better to charge the main reservoirs if they have become empty during a layover between runs. The claim has been made that any of several schemes of two-voltage or two-connection compressor motors which permit compressor operation at idle speeds of the engine also permit the use of smaller compressors and smaller main reservoirs

and that so long as the engine is kept idling when not driving the car, the operator is relieved of the necessity of paying attention to his air gauges.

Unnecessary Auxiliary Control

Apparatus To Be Avoided

These schemes, however, on account of the necessity for continuously idling the engine with attendant waste of fuel and fouling of the cylinders and spark plugs, and on account of the complex electrical equipment required, have not come into general use. They are to be avoided when possible as the simplicity and reliability of the differential field control of generator voltage is either lost or seriously impaired by their use. Where long mountain grades are to be encountered in service,



Gas-Electric Rail-Motor Car and Trailer Recently Placed in Service on the Arkansas-Louisiana Division of the Rock Island

additional main reservoir capacity will permit the engine to be shut down when coasting and thus eliminate the extra engine maintenance which would otherwise come from protracted operation without load.

In time it is very probable that the larger rail motor power units will have a separate small engine burning distillate fuel directly connected to a suitably designed air pump for supplying air, and in some cases also directly connected to a small electric generator for train lighting current, etc., a motor-driven compressor operated by current from the main generator being installed as a reserve. In the case of small power plants the air may well be supplied by a small compressor directly connected to the engine or engines.

In most equipment, charging the storage battery is also an auxiliary function of the main power plant. Where differential field control of the generator voltage is used, this is accomplished by making the exciter of sufficient current capacity to take care of the storage battery. On account of the variable voltage of the exciter, a protective resistance and a reverse current relay are connected between the exciter and the battery. The protective resistance is made with a high temperature coefficient so that variations in exciter voltage make little variation in the battery charging rate and the value of this protective resistance is under the control of the operator or maintainer, so that the battery charging rate can be adjusted to the lighting and other load on the battery.

Some specialty manufacturers, in an endeavor to sell equipment in the rapidly growing rail motor field, have proposed various other battery-charging schemes and some few of these schemes have actually been

tried out on small rail cars. On account of the added complication of most of these schemes and their interference with successful operation of the electric transmission they have not become popular and the present trend is toward the simplest possible scheme which has been outlined.

It should be remembered that the storage battery is a vital part of the power plant of a gas or oil electric rail motor unit; that it is an integral part of the generator, being used to excite the field of the generator exciter until the speed is built up sufficiently for self-excitation. As a matter of fact, it is the use of the storage battery for this particular function that makes the use of the gas- or oil-electric rail equipment commercially advantageous.

The battery is also necessary for economical engine starting and has a secondary value for lighting the car.

Operation

The first and most important thing in rail motor operation is the choosing or selecting of the equipment for the job in hand. The following formula and statement may prove of some assistance in making this selection, being based on the results of several years of rail motor experience:

For roughly estimating tractive effort of rail motors using electric transmissions:

$$(a) \text{ Long method: } \frac{\text{Eng. hp.} \times .75 \times 375}{\text{m.p.h.}} = \text{T. F.}$$

$$(b) \text{ Short method: } \frac{\text{Eng. hp.} \times 282}{\text{m.p.h.}} = \text{T. F.}$$

$$(c) \frac{\text{T. F.} \times \text{m.p.h.}}{375} = \text{hp. at wheel}$$

T. F. = tractive force in pounds

In local, branch or main line passenger train service it has been demonstrated that a total motor-train weight of 600 lb. per hp. is practicable for the average schedule and grades such as obtain on practically all railroads in the middle west territory. In case of a fast schedule or heavy grade condition it will, in all probability, be found that 500 lb. train weight per hp. should obtain. In case of slower schedule or light grades it is possible to increase the train weight per hp. to 650 and in some cases to 700 lb.

In figuring power-plant capacity, it must be borne in mind that there are several very important factors to be considered.

First in importance is the fact that one of the great advantages to be obtained from the use of rail motors, especially in passenger service, is the economy of putting the comparatively light motor train "in the hole" for meets with heavier trains. To do this, however, it is necessary that there be an ample margin or reserve of power to enable it to make up time on its schedule. In a great many instances where motor trains are operated on lines where they will be subject to many of these delays, it is highly desirable that the power capacity be sufficient for them to make up from one hour to two hours on a 150- or 200-mile run. In this connection it should be stated that experience has demonstrated that on poor track, or track of light rail section, a rail motor train can be operated ten or fifteen miles per hour faster than can a train drawn by a conventional steam locomotive.

Second, this same reserve capacity is necessary to make up time lost performing station work where there is much seasonal baggage, mail or express traffic.

Third, a margin or reserve of power is also necessary for the times (and such times will happen) when, because of a dirty or broken spark plug, carburetor

adjustment being a little off, leaky valves or piston rings, etc., the total engine power available is considerably reduced below normal.

Fourth, this reserve power will be extremely necessary in case of adverse weather conditions, especially high winds or heavy wheeling through deep snow. However, just here it might be well to say that the modern gas- or oil-electric rail motor of 200 hp. or more, properly equipped with snow plows so that the snow will not roll in over the plow and under the frame of the car or around the end of the plow wings, will buck snow as well, or even better than a light Pacific type steam locomotive. In other words, when this type of motorized rail equipment is unable to force its way through the snow it is for the reason that a regular snow plow is required to open the line.

There is a fifth factor that justifies the purchase of reserve power when buying a power plant for a rail motor, and that is the fact that the greater percentage of time a rail motor engine can be operated at less than its full rate of capacity, the longer the life, the lower the maintenance and the better the service obtained from it. At the same time the flexibility of the service rendered by the rail motor is increased by the fact that in emergency it is possible to handle some additional load.

In local freight or mixed service—again considering middle west territory—a total train weight of 2,500 lb. per hp. may well be considered the maximum tonnage, which would mean 1,000 tons total train weight for 800 hp., based on 25 empties or eight loads and nine empties, rating the tonnage down for faster schedules or heavier grades.

Switching Service

In light classification-yard switching, where the trains to be broken up do not exceed 2,000 tons and when there is ample time for the job in hand, a 5000-lb. train weight per hp. may be used as the calculating factor. This can be done, for example, with an 800-hp. rail motor having an ample reserve capacity and geared for 37½ miles per hour maximum speed. That is, it should handle the class of switching referred to in a satisfactory manner, and, it might be said, more satisfactorily than a 92-ton, six-wheel saturated-steam switcher weighing 92-tons, including the tender.

For heavy industry switching, where speed and the kicking of cars, etc., is not an important factor, this train weight per horsepower could be increased to 6,000 lb. by using a lower gear ratio. By still further reducing the gear ratio and using a special design for the job in hand it is possible quite materially to increase the pounds per horsepower. However, such equipment as this could only be used to advantage in switching around shops or at other points where speed of movement is of little consequence and the nature of the service is entirely special and peculiar to that point.

In view of the foregoing it would seem that rail motor switchers with electrical transmission can be built for several classes of switching service ranging from the small 30-ton, 170-hp. unit to approximately 80 tons and 800 hp., with different gear ratios such as may prove suitable for the job in hand, covering more or less completely the field of light traffic switching including industry, small yards, shop yards, light interchange, terminal and classification yards.

Today we have in successful operation and in regular service motorized rail equipment up to and including motive power units of 800 hp. capacity. These units of

motive power are being used in the lighter classes of passenger train service, switching service and mixed or local freight-train service. The Canadian National has placed in service a 2,600 hp. oil electric rail motor in an endeavor to ascertain the economic value in heavy passenger and freight service as compared with the modern conventional type of steam locomotive of similar capacity.

The percentage of the total steam-locomotive fuel consumed in stand by losses has been variously estimated to run from 15 to 25 per cent of the total locomotive fuel consumed. This important item is mentioned for the reason that all are wondering what type or class of motive power, other than electric locomotives in electrified zones, can be used in the future to effect a reduction in transportation costs over those now occasioned by the modern conventional steam locomotive. To the student it would appear that there are several roads to this much-desired goal. The first is the possible use of improved gas- or oil-electric motorized rail equipment for handling at least the lighter rail traffic, which may be taken to include the handling of local freight trains up to 1,000 tons train weight in local, mixed, transfer or transfer switching service on branch lines, main lines, belt lines or terminal switching and transfer districts; also for slow or fast local passenger-train service, and in some cases light suburban service or light-weight fast main-line service.

The trend to date seems to indicate that the fuel economy of such equipment, together with the high percentage of availability and the comparatively low cost of maintenance and operation, promises well indeed for this type of motive power for the classes of service mentioned and it is possible that the tests of the heavy high-capacity oil-electric motive-power unit of the Canadian National may prove the economic adaptability of such equipment in heavier rail service.

The railways have one problem in connection with rail motor traffic. Short-haul, light passenger traffic on the railways has been steadily diminishing ever since the advent of good roads, private automobiles and highway motor coaches. Yet they are, in many cases, called upon to furnish a rail post office and express service with facilities for a few passengers and in many cases the business will not justify the operation of even a single motor car. In such cases the railway companies are striving to serve the public by providing the railway post office, express and passenger facilities in mixed train consists. It is probable that these facilities can best be provided by designing a suitable steel car containing the railway post office space, as required by the federal government, baggage and express space, small passenger compartment and a caboose section with a cupola for the crew, thus making it necessary to include but one car for all this service in the mixed train consists. This same type of car can be used as a first class motor car trailer.

The secretary of a live stock shipping cooperative association recently informed an advisory board member that they do not like the trucking of live stock to market any better than the railroads do and they are doing more to prevent it than are the railroads. He asked operation of the transportation officers to this end.

He related one case where a shipper trucked a load of live stock nearly 300 miles to market at a cost of \$1.00 per cwt. plus shrinkage, where the cost by rail would have been 28 cents or 30 cents with less shrinkage. In addition he said that truck hogs do not bring

as much money on the market, the reduction being anywhere from 10 to 20 cents per cwt. The reason advanced for the use of trucks is that shippers could ship in small lots at almost any time desired, which was not true for rail shipments.

It is possible that the railroads, by using rail motors for light local freight and mixed train service may be able to give their patrons better service on their light-traffic branch lines and at the same time decrease the cost of the service rendered.

The greatest net economy to be secured from the use of motorized rail equipment will, in all likelihood, be obtained when light-traffic lines are completely motorized to the exclusion of steam motive power, since by so doing all need for maintaining and operating such facilities as coal docks, water stations, etc., necessary for steam locomotive operation, will be eliminated. At the same time the maintenance of tracks and bridges can be quite considerably reduced since rail motors of the size used on light traffic lines are much easier on the track and structures than are steam motive power units of similar capacity.

As a rule the heaviest single item of track maintenance expense is that of bridge and culvert maintenance and the use of the motorized rail equipment permits the use of lighter structures of this nature, together with a lower cost of maintaining them. In other words, in all probability there are cases where the bridges on light-traffic lines are now too light since they are the governing factor as regards the weight of motive power used on the line and in such case by the use of motorized equipment, increased tonnage can be handled without the necessity of rebuilding the bridges.

In this connection it may be well to mention that the safe operating speed of such motorized equipment is 10 to 15 miles per hour higher than that for steam motive power of similar capacity.

Coach Operation by Rail Subsidiary

WASHINGTON, D. C.

HOLDING that the incorporation by the Spokane, Portland & Seattle of a subsidiary company and the operation through that company of a motor-coach line between Portland and Astoria, Ore., is not in violation of the interstate commerce act, the Interstate Commerce Commission has dismissed a complaint filed by A. Jaloff, in 1924, which asked the commission to require the company to cease and desist from alleged violation of the act.

Complainant, an operator of motor coaches between points in Oregon, had contended that by operating through the Spokane, Portland & Seattle Transportation Company the railway company had in effect extended its line without having first secured a certificate of public convenience and necessity under section 1 of the act, and that the investment of its funds in the transportation company was contrary to the provisions of section 15a relating to recapture of excess earnings. The commission finds that the railway was not required to obtain a certificate before commencing the operation of the motor line and that the advances to the transportation company have not been charged to operating expenses.

The report by Division 3 of the commission finds, however, that carriers subject to the interstate com-

merce act must file tariffs showing specifically charges for service by motor coach. On this point it says:

The railway company sold round-trip tickets from Astoria to Kelso and Chahalis, Wash., which gave the passenger the privilege of using the transportation company's motor-bus service over a part of the route on the return trip if so desired. The railway company also offered to sell round-trip tickets between Portland and Astoria or intermediate points good for return by either train or motor-bus. There is no reference in the railway company's tariffs on file with us to the transportation company's service. The evidence does not show the allowances made to the transportation company for any service rendered by it to passengers traveling on tickets sold by the railway company. If the allowance is such that the amount accruing to the railway company for the actual rail service rendered by it independent of any transportation by the transportation company's motor-bus line is less than the published fare for such rail transportation there is a violation of the act. The act requires that all charges for transportation subject to the act be filed with us and that such charges be collected without deviation. Carriers must file with us tariffs showing clearly and specifically charges for service subject to the act independent of charges for service by motor-bus. The charges for service subject to the act must be collected and retained entirely by the railway company. It is not a compliance with section 6 of the act to publish a through fare which covers rail service performed by it and service by motor bus performed by the transportation company without separately stating the charge for the rail service. *Motor Bus and Motor Truck Operation*, 140 I. C. C. 685, 729.

Complainant also alleged that its articles of incorporation do not authorize the S. P. & S. to organize a subsidiary company to engage in motor transportation. The Commission finds it does not have jurisdiction to determine whether or not such action by the railway company was *ultra vires*.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading during the week ended March 16 amounted to 957,460 cars, an increase of 14,888 cars as compared with loading in the corresponding week of last year, and a decrease of 44,472 cars as compared with 1927. An increase of 17,137 cars in miscellaneous freight loading accounted for the larger total as compared to a year ago, while a decrease of 45,872 cars in coal loading brought down the total as compared with that for the corresponding week of 1927. Totals for the Southern, Northwestern and Central Western districts showed decreases as compared with last year. The summary,

as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading			
	Week ended Saturday, March 16, 1929	1928	1927
Districts			
Eastern	224,494	213,502	234,813
Allegheny	199,227	186,395	212,005
Pocahontas	56,216	53,667	59,051
Southern	149,716	158,713	165,783
Northwestern	112,358	119,595	115,062
Central Western	135,032	136,286	139,295
Southwestern	80,417	74,414	75,923
Total Western Districts	327,807	330,295	330,280
Total All Roads	957,460	942,572	1,001,932
Commodities			
Grain and Grain Products	43,204	44,422	37,861
Live Stock	22,542	29,229	26,971
Coal	160,347	160,365	206,219
Coke	13,105	11,094	12,161
Forest Products	66,592	67,204	71,790
Ore	11,925	8,113	10,955
Merchandise, L.C.L.	260,766	260,303	264,678
Miscellaneous	378,979	361,842	371,297
March 16	957,460	942,572	1,001,932
March 9	945,770	951,556	1,000,754
March 2	976,987	959,494	989,863
February 23	907,337	869,417	918,858
February 16	958,051	888,586	954,794
Cumulative totals, 11 weeks	10,218,953	9,893,259	10,551,127

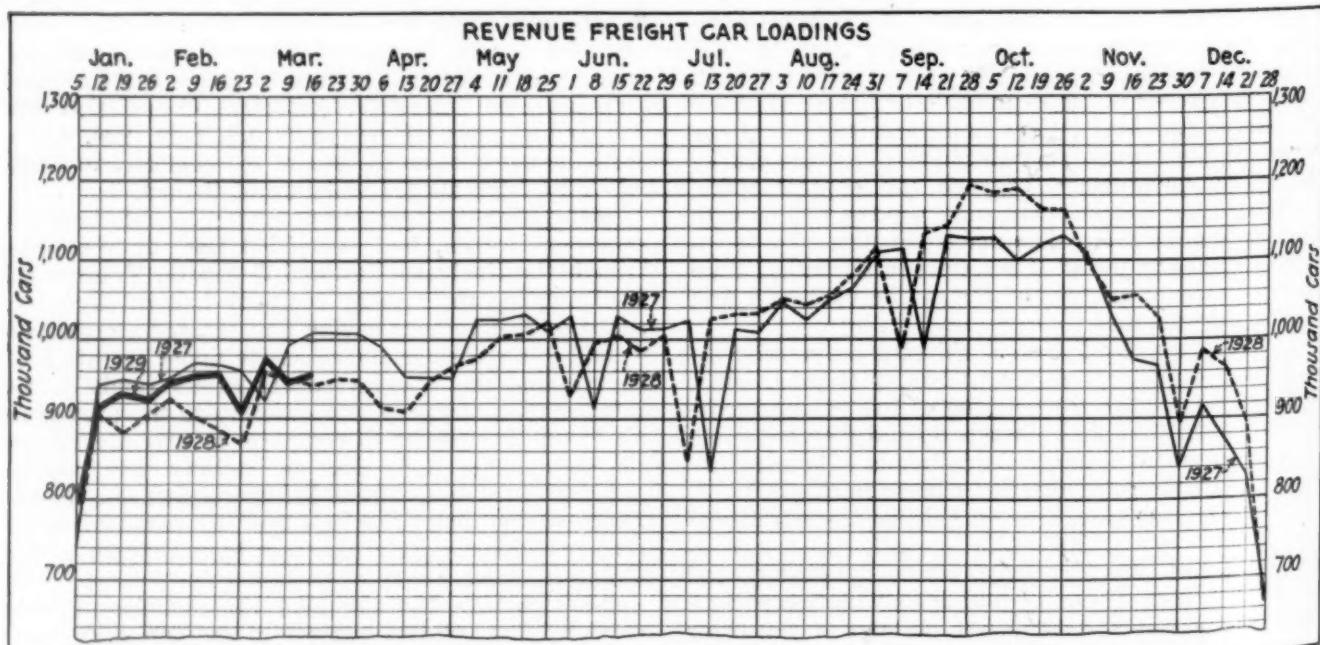
The freight car surplus during the period ended March 8 averaged 225,965 cars, as compared with 217,400 cars on February 28. The total included 95,907 box cars, 84,956 coal cars, 26,409 stock cars and 10,128 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended March 16 were 66,405 cars, an increase over the previous week of 1,341 cars and an increase of 1,316 cars over the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
March 16, 1929	66,405	46,581
March 9, 1929	65,064	46,810
March 2, 1929	69,042	48,196
March 17, 1928	65,089	44,986
Cumulative Totals for Canada		
March 16, 1929	677,348	469,862
March 17, 1928	691,654	433,397
March 19, 1927	665,724	424,932

ROBERT A. SAWYER of Smithville, Tex., freight engineman on the Missouri-Kansas-Texas, writes to the general manager of the road to report, from notes in his diary, that for over one year he has not pulled out a drawbar.



What One Road Has Secured From Treated Timber*

The observations from a quarter century's experience with the protection of wood against decay

By A. F. Blaess
Chief Engineer, Illinois Central System

THE Illinois Central began the treatment of timber in 1903 and since that time has treated 52,009,662 crossties, 166,004,239 ft. b.m. of lumber, 27,565,763 ft. b.m. of switch ties, and 12,970,450 lin. ft. of piling. Included in these figures is material used for bridges and buildings, trunks, platforms, telegraph poles, crossing plank, fence posts, and water tanks. During the last year we have also used creosoted material in the decks of some stock cars.

Treated ties were first used on the Illinois Central System in 1891 when 520 red oak ties treated with zinc chloride were placed in track near Jackson, Tenn. Of these ties, 223 were taken out in 1900; the balance were removed in 1901. In the following year, 670 treated ties were laid on the Illinois division. Fifteen hundred treated ties were applied at various points on lines south of the Ohio river in 1893, the life of which varied from four to eight years.

It was not until 1903 that treated timber came into general use on the Illinois Central, when treating plants were constructed at Grenada, Miss., and Carbondale, Ill. These plants were constructed by the Ayer & Lord Tie Company of Chicago, through whom a very large proportion of our ties have been secured and who have treated the greater part of the ties and timber used on the Illinois Central. The total number of treated ties applied to main track during 1903 was 23,364. These consisted principally of red oak, with some beech, gum and chestnut ties, treated with $\frac{1}{2}$ lb. of dry soluble zinc chloride in solution per cubic foot of timber. In 1927, we treated 2,510,899 ties, or more than 100 times as many as in 1903.

Chloride of zinc was employed exclusively for the treatment of ties until 1907, when we began the use of creosote oil, in addition to zinc chloride. Since that year the percentage of ties treated with oil showed a gradual increase while the number treated with chloride of zinc showed a corresponding decrease, except for two years during the World War when we could not secure sufficient creosote oil to meet all of our requirements and the more extensive use of zinc chloride was necessary.

Ties treated by the zinc chloride process gave fairly good service on our lines north of the Ohio river and west of Chicago, but were not very successful south of the Ohio river, owing to the difference in climatic conditions. As a result we confined their use, so far as practical, to our northern and western lines, while the use of ties treated with creosote oil was confined largely to our southern lines.

We found that ties newly treated by the zinc chloride process were of such greatly increased electrical con-

ductivity that for some time they caused trouble with the track circuits of our signal systems. Ties treated by this process also frequently checked badly. Those troubles were somewhat reduced by piling the ties close together while seasoning, before and after treatment, to prevent rapid drying out, and holding them several weeks after treatment before applying them to the track.

As the supply of suitable quality of tie timber became more scarce and the prices increased, we progressively increased the number of ties treated with creosote oil (which had proved very successful) from year to year and decreased the number of ties treated by zinc chloride. Our experience has convinced us that the creosote treatment is better adapted to climatic conditions on our lines, and the use of zinc chloride as a preservative treatment of timber was entirely discontinued in 1921.

Oak Timber Supply Decreasing

During and immediately following the war, we were unable to secure a sufficient number of ties to take care of our requirements in the territory from which we ordinarily draw our supply, and to offset this we used a large number of untreated fir ties from the Pacific Coast. This naturally reduced the percentage of treated ties used on our railroad during that period. We have, in the past, also used a large number of untreated white oak ties on our lines in Kentucky and Tennessee and north of the Ohio river. We have found in recent years, however, as the oak timber supply has been growing more scarce, that the white oak ties secured contain a great deal more sap, are coarser grained and are more porous than in former years. This has resulted in shortening the service life of these ties to such an extent that we were justified in treating them, and in 1926 we inaugurated the practice of treating all ties, with the exception of Louisiana heart red cypress, which has been used for both switch ties and crossties for many years. Louisiana red cypress timber for tie production is growing scarce, and the limited number of ties of that kind secured by us have been used in the vicinity of New Orleans where they were produced.

Approximately 78 per cent of all ties in our main line tracks are now treated; 95 per cent of all ties applied in 1927 were treated with creosote oil.

Tie renewals in 1901 amounted to 324 per mile of maintained track, as compared to 188 per mile in 1927. Excluding the Yazoo & Mississippi Valley and the Gulf & Ship Island, the tie renewals per mile of maintained track on the Illinois Central alone were 161 for 1927. The complete figures for 1928 are not available, but will undoubtedly show still further reduction.

Now that we are using treated ties exclusively on our

* From a paper presented before the annual convention of the American Wood Preservers Association at Louisville, Ky., on January 23.

properties, with the exception of a limited number of Louisiana heart red cypress ties in the vicinity of New Orleans, which should give us approximately the same life as treated ties, and are protecting all ties applied in tracks where the density of traffic and use is such that the life of the tie is determined by mechanical wear rather than decay, with tie plates of proper design, we expect to show a substantial reduction in the number of tie renewals per mile per year in coming years.

Bridge Timber

The use of creosoted piling and bridge decks was begun in 1904. Our first creosoted bridge decks consisted of open deck trestles protected by closing the openings between ties and placing a thin layer of ballast for protection against fire. This design did not prove satisfactory and was abandoned in 1905, since which time open deck trestles have been constructed with treated piling, caps and bracing, the stringers, ties and guard rails being untreated, as it was the popular belief that a serious fire risk was incurred by constructing bridge decks of creosoted timber.

Reports presented to the American Railway Engineering Association and the American Railway Bridge and Building Association indicate that creosoted timber does not offer any greater fire hazard than untreated timber in railroad trestles, except with freshly treated timber. We are endeavoring to overcome this hazard by allowing the treated timber to season a sufficient time after treatment and before application to the structure, to permit the more volatile surface oils to evaporate or become absorbed by the timber. We have recently revised our standards for open deck timber bridges, the revised standard calling for the use of all treated material.

Our ballast deck trestles are constructed of treated timber throughout and with the adoption of an all-treated open deck trestle, the Illinois Central is using only treated material for timber bridges.

On January 1, 1928, we had in service 140,166 ft. of open deck trestle with treated bents, piling and bracing, and untreated deck; 412,387 lin. ft. of ballast deck trestle constructed throughout of treated material; and 4,371 ft. of open deck trestle, all treated. It is conservatively estimated that the use of treated timber in bridges has much more than doubled the life of such structures. We also figure the life for treated piling as at least double that of untreated piling, although our records show treated piling in place 25 years that are still in good shape, which would indicate that we can expect much more than twice the life of untreated piling.

Creosoted Tanks

The increasing scarcity of suitable timber for the construction of water tanks has resulted in a number of railroads constructing creosoted water tanks. The Illinois Central standard creosoted tank includes the entire structure from foundation to finial, comprising tank, frame, frost box and roof. We have constructed creosoted frames for water tanks for more than 25 years and were in all probability the first to use them, as we were also the first to creosote the entire structure. The timber used in the construction of the tank is Southern yellow pine.

The Illinois Central creosoted tanks are built in three standard sizes; 30,000 gal. capacity with 16-ft. stave and 18-ft. bottom plank; 50,000 gal. capacity with 16-ft. stave and 24-ft. bottom plank; and 100,000 gal. capacity with 20-ft. stave and 30-ft. bottom plank.

The first 18 or 20 tanks constructed were practically all sap wood, and the Rueping process was used in their

treatment, five to six pounds of oil being retained per cubic foot. On account of the difficulty encountered in getting all-sap timber, the specifications were modified in 1920 to permit some heart wood. The treatment was then changed to the full cell process, using 15 to 16 lb. of oil per cubic foot, in order to get better penetration into the heart timber.

An important factor in the construction of these tanks that will undoubtedly increase their life is that all timber more than one inch in thickness is framed before treatment. The work of framing the tank is given such careful attention that it is rarely necessary even to bore a hole in the treated timber during the field erection.

In the last 13 years we have constructed a total of 104 creosoted tanks. It is estimated that the life of these tanks will be 40 years, as compared to a life of approximately 30 years for the best untreated timber available, and, according to our records, an average life for all untreated tanks of approximately 25 years. The maintenance is practically negligible.

One objectionable feature of the creosoted tank is the tendency of the water to seep through the timber. This makes it necessary to apply a waterproofing compound to the interior of the tank after erection, to prevent seepage. Another lesser objection to the creosoted tank is its appearance, due to discoloration after it has been in service for a number of years. These objections are, however, of a minor nature.

Framing

The importance of framing bridge and other structural timber before treatment was recognized from the start as an important adjunct to the actual process of treatment, and the Illinois Central began the framing of timber before treatment at the time the treating plant was established at Grenada, where practically all bridge and structural timber is treated. While our framing operations do not include all timber treated, they do cover practically all timber used for construction and will be extended as conditions permit.

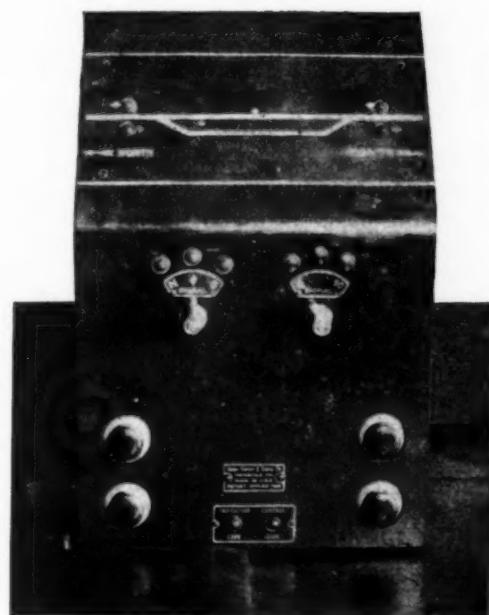
The necessity for machining crossties before treatment was realized as the treatment was extended and a machine for adzing, boring, trimming end and branding ties was installed at Grenada in the latter part of 1923. Hewed ties only are adzed, but both hewed and sawed ties are bored and sawed to length. The ties are also branded with the date. A second tie working machine was installed at Carbondale in 1928.

While the protection of timber against decay is well under way when it leaves the treating plant, the job is by no means finished, as it is of almost equal importance to the actual treatment that it receive the proper care in its application, and it is essential that the process of treatment be followed by proper precautions, both in handling and in its application. Much of the premature decay of treated timber can be traced directly to abuses in the field, not the least of which is in framing. Field framing is, of course, sometimes necessary, even with the most careful attention to the details of framing at the treating plant.

Our railroad is by no means free from abuses of treated timber, but we are putting forth every effort to overcome them. Existing instructions are that the exposure of any untreated surface, either by accident or abuse, or through framing after treatment, shall be followed by two applications of hot creosote oil. This applies particularly to piling at the time of cut off. We hope to accomplish the desired result by following up and enforcing these instructions vigorously.

Manual Block Signals Controlled Remotely on the Big Four

Centralized circuit system affords control indication check and OS. feature, thus saving the expense of operators



The Control Machine in the Office at Greensburg

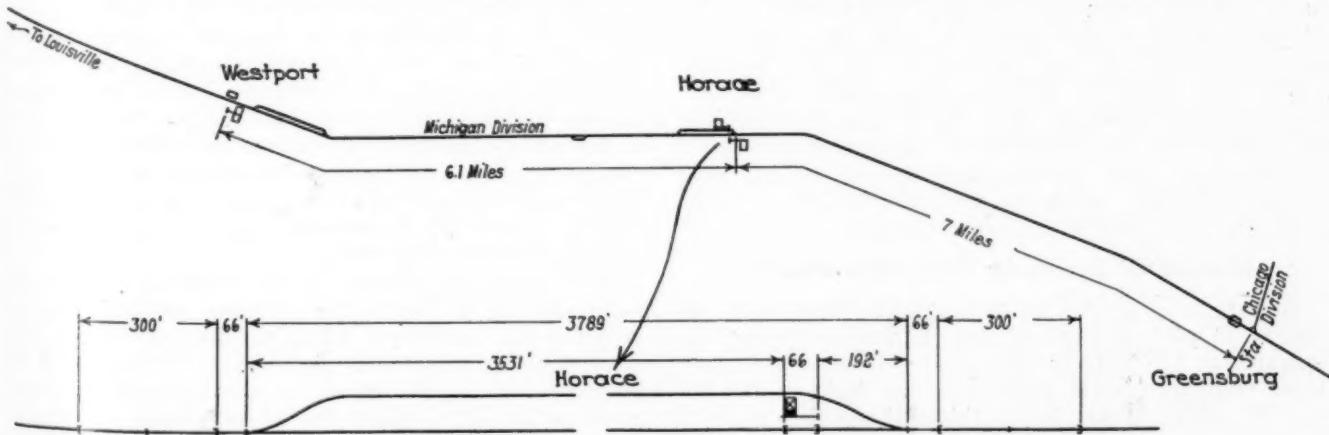


View at Horace Showing Northbound Signal at Clear

THE Cleveland, Cincinnati, Chicago & St. Louis now has five installations of unattended manual block stations remotely controlled from adjacent stations which serve to direct train movements and report the passing of trains, thereby saving the expense of operators at such points, all of which are located at outlying passing tracks.

The first installation of this device was made on the Michigan division of the Big Four at Horace, Ind., which is seven miles south of Greensburg on the line

from Greensburg to Louisville, Ky. The control machine is located at Greensburg and is handled by an operator who also serves the Chicago division of the Big Four between Indianapolis and Cincinnati. The next manual block station with operators continuously on duty is located at Westport, Ind., 13 miles south of Greensburg. The automatic equipment at Horace divides this territory and permits trains to meet at the Horace siding under block protection. If it were not for this system, it would be necessary to employ three operators at Horace. The traffic on this line consists of one passenger train and approximately eight freight trains each way daily, or a total of 18 movements a day. The major portion of the freight traffic con-



Track and Signal Plan Showing Layout at Horace, Ind.

sists of coal from Kentucky moving north to Greensburg for connections north.

Four similar installations of remote controlled manual block signals are in service on the Cairo division of the Big Four, at Ernst, Ill., Trimble, Dunn and Gossett.

Automatic OS. Reports the Passing of Trains

Short track circuits, located in the main line outside of the limits of the passing tracks, are so connected as to report the passing of a train and the direction in which it is moving. When a train enters a track circuit approaching the siding, the fact is indicated immediately by an annunciator bell and a light on the illuminated track diagram on the machine in the operator's office at Greensburg. The movement is likewise indicated when the train passes the signal and again when it passes the track circuits beyond the siding switch. An indication showing the position of each signal is displayed on the control machine until acknowledged by the operator.

As shown in the track and signal plan, each of the two manual block signals is located to the right of and adjacent to the track governed, and they are separated sufficiently to permit the use of a track circuit that will afford proper shunting. The control of each signal is taken through a circuit breaker on the opposing signal, so that only one of the signals may be cleared at a time thus insuring that the other is displaying the stop indication when the one indicates proceed. The signals are so connected that a train passing the signal indicating proceed, automatically releases the signal, causing it to display the stop indication.

Middle Order Established by Signal Indication

The operating rules provide that the "middle order" must be used when the movement of a train carrying passengers is affected by a train order, except when the meeting point is the initial station of the superior train on the division. When the dispatcher sends a train order establishing a meet at Horace, the operator at Greensburg receives the order and causes the signals at Horace to display the stop indication until the train taking the siding reports in the clear, after which a proceed indication is displayed to the train using the main track. The conditions are reported to the dispatcher and by this action a middle order is in effect established by signal indication.

The two manual block signals at Horace stand normally in the stop position. The indicator lights on the operator's machine at Greensburg show the position of the signals, whether at stop or proceed. Only one three-position signal lever is used to control both the north and the southbound signals. The normal or center position places both signals at stop, and the movement of either to the point marked "N" or "S" (North & South) will clear the corresponding signal to the 45-deg. (caution) position. The use of one three-position lever precludes the possibility of clearing both signals at one time. The right-hand lever on the machine, marked "90 deg." is used to clear the signals from the caution position to the proceed indication.

Method of Directing Train Movements

In case it is desired to give a southbound train authority to pass through Horace without stopping, the operator at Greensburg moves the left-hand miniature lever from its central position to the right of the letter "S", which causes the southbound signal to move to the caution or 45-deg. position, which lights the indication light above the letter "S", thus informing the

operator that the signal has cleared to the caution position. He then moves the right-hand lever to the right to the position marked 90 deg., causing the signal to move up from the caution position to the proceed or 90 deg. position. This gives the engineman authority to proceed and indicates to him that the block is clear to the next block station. In case the block is occupied by a preceding train, only the caution indication is displayed, which authorizes the engineman to proceed with caution into the occupied block.

In case two trains are to meet at Horace, the manual block signals are left in the stop position until the operator at Greensburg is ready for one train or the other to proceed. One train, as designated by the dispatcher's order, takes the siding and reports in the clear by telephone. The manual block signal for the opposing train is then set at the proceed indication by the Greensburg operator and the train proceeds, thus completing the meet movement.

Two-Wire Control System

The control of these manual block signals at Horace, as well as the return indications to report to OSing of the trains and the position of the signals is all handled over two line wires extending to the operator's office at Greensburg seven miles away. The Union Switch & Signal Company's selector system of centralized dispatcher control is used.

The power for the operation of the electric motor semaphore signals as well as the control circuits, is provided by storage batteries charged by rectifiers from alternating current supply from local lighting circuits.

The same control equipment and, in general, the same type of construction are employed on the other four installations of remotely controlled manual block stations on the Big Four.

Government "Encouragement" of Private Barge Operation

WASHINGTON, D. C.

A STRIKING recital of some of the ways of the government in business and some reflections on the sincerity of those in charge of the government's "experimental" operation of barge service on the Mississippi river and its tributaries as a so-called demonstration of the possibilities open for private operation some day, are afforded by the recitals in a suit filed in the supreme court of the District of Columbia on March 23 by Edward F. Goltra, of St. Louis, against the Inland Waterways Corporation. Mr. Goltra, represented by the law firms of Hughes, Schurman and Dwight, of New York, and Palmer, Davis and Scott, of Washington, seeks to recover \$10,219,700 as damages alleged to have been suffered by breaches on the part of the United States of a contract by which he was to engage in private operation of barges on the rivers but which later brought him into competition with the ambitious efforts of government officers to establish a government operated service.

The declaration recites a series of acts by the government officers, in the names of three successive secretaries of war and two chiefs of engineers, which it says were designed to prevent Mr. Goltra from carrying on his proposed private operation in competition with the government and to obtain the boats for the government service. The whole affair has been the subject of litigation extending over a period of six years, which has

three times brought it to the Supreme Court of the United States but which has thus far been confined largely to technical and jurisdictional questions.

The suit arises from a contract entered into in May, 1919, supplemented in 1921, between Mr. Goltra and Gen. W. M. Black, chief of the engineers of the Army, by which he leased 19 barges and three or four tow-boats then under construction or to be constructed for the government and agreed to operate them in common-carrier service on the Mississippi river and tributaries, with an option to purchase the boats before the expiration of the contract, at a value to be determined by appraisers. About that time the government also began the transportation of commodities under the name of the Mississippi Warrior Service, at rates generally 80 per cent of the rail tariffs, after which various steps were taken by the government officers to prevent him from competing with the government service and when he attempted to exercise his option to purchase, the chief of engineers, Gen. Lansing H. Beach, refused to appoint the appraiser on behalf of the government and efforts were made to terminate the contract.

On March 25, 1925, Col. T. Q. Ashburn, then in charge of the Mississippi Warrior Service for the War Department, and now a general and chief executive officer of the Inland Waterways Corporation, seized the boats without notice and attempted to move them down the river and out of the jurisdiction of the district court at St. Louis. An injunction was obtained, but, according to the declaration, the representatives of the government "by technical and jurisdictional pleas, actions and appeals, prevented plaintiff from having said cause tried upon the merits until after the time specified for the termination of said lease, to wit, July 15, 1927, after which time plaintiff's said bill of complaint was dismissed; by reason of said technical and jurisdictional pleas, actions and appeals said defendants therein have deprived plaintiff of the possession, use and benefit of said boats and barges and said unloading facilities, except for a brief period of time in 1925 and 1926, when plaintiff had possession of and was permitted to operate the same under order of the court; during the major portion of the pendency of said proceedings said boats and barges were and now are in the possession and use of the defendant Inland Waterways Corporation, successor to said Mississippi Warrior Service."

Says Government Would Permit No Competition

In anticipation of the delivery of the boats and in order to be able to solicit business for them, plaintiff says he requested Newton D. Baker, Secretary of War, to designate the rates for his transportation of all commodities. Secretary Baker designated 80 per cent of the prevailing rail tariffs, this being the rate then being charged by the United States itself for transportation by the Mississippi Warrior Service, and plaintiff, in reliance upon the designation of that rate solicited and made several contracts for the transportation at that rate of grains, oil, coal, manganese ore and other commodities, and prepared to carry out said contracts when the boats and barges should be delivered to him. "Notwithstanding this, however, and notwithstanding that it was the intention of the parties to said contracts that plaintiff be enabled to establish and create confidence in the transportation of freight by water on the Mississippi river and its tributaries for the mutual benefit of both parties and notwithstanding, although well knowing the facts, that plaintiff could not establish or create public confidence in such service or so operate

unless able to compete with said Mississippi Warrior Service and to charge rates materially lower than the prevailing rail tariffs, and that plaintiff could not operate in the upper Mississippi river because of the construction and size of said boats and barges, and notwithstanding the fact that the Secretary of War had no authority under said original contract to change a rate once designated, John W. Weeks, successor to said Newton D. Baker, acting in his capacity as Secretary of War, notified plaintiff that he would not be permitted to operate said boats and barges at rates below the prevailing rail tariffs on the lower Mississippi river and its tributaries, and that he would not be permitted to operate in competition with said Mississippi Warrior Service."

After protest, it is stated, Secretary Weeks notified him that he would be permitted to transport certain specified commodities "for which there was no great demand" at 80 per cent of the rail tariffs, but failed to consent to such rate on grains and some other commodities, and notified him that he must consult the Mississippi Warrior Service as to the commodities he expected to transport on the lower river and that he would not be permitted to operate in competition with the government service.

Claims False Reports Circulated

It is also charged that Secretary Weeks, Colonel Ashburn and other government officers caused the circulation in newspapers and otherwise of reports that the plaintiff would not be permitted to carry commodities on the lower river at rates less than the rail rates, that the boats and barges would not be delivered, and, after they were delivered, that he would not be permitted to compete with the government service, that he was not performing his obligation to operate as a common carrier, that he had defaulted in his obligations under the contracts, and that the United States would terminate the contracts and take away the boats. Other reports "contrary to fact" and "designed to impair the confidence of the public in plaintiff" are said to have been circulated, and when the boats were delivered on July 15, 1922, the declaration states, "all of the boats were incomplete or defective and were not ready for the purposes for which they were intended by the parties, and plaintiff had to expend considerable money upon said boats and barges and lay them up for some time before they could be used as intended, and as a result thereof suffered delay in commencing the operation of such boats and barges."

"The foregoing acts of the United States and its officers, acting on behalf of the United States, were designed and committed for the purpose of preventing plaintiff from competing with the Mississippi Warrior Service and putting him ostensibly in default in the performance of his obligations under said contracts, and thereby eventually securing said boats for the Mississippi Warrior Service."

Plaintiff further says that he has ever been ready, willing and able to perform his obligations under the contracts if permitted to do so by the United States, but that by reason of "all the aforesaid unlawful and improper acts and breaches of said contracts by the United States, its officers and agents," he was prevented from earning large gains and profits with the boats and barges, for which he asks damages in the amount of \$10,000,000, in addition to \$219,700 representing mainly expenditures in connection with the efforts to operate the boats, and interest from March 25, 1923.

One of the Moynihans

*Minneapolis & St. Louis honors its "Fighting Irishman"
who has served loyally and well*

NEW Jersey Irishmen" have traveled far from their native tide-flats and many a railway is the better for having employed some of them. One such Irishman is Jerry Moynihan, assistant to the vice-president of the Railway Transfer Company of Minneapolis, who, in 1928, completed 47 years of service with the Minneapolis & St. Louis. During all but the first two years of that time, Mr. Moynihan was superintendent of the transfer company, which is an M. & St. L. subsidiary.

During all those years, he fought the bitter climate, and hosts of other difficulties, to keep the transportation service to the flour milling district of Minneapolis on a high level. So outstanding has his performance been that the management and board of directors of the road have issued a booklet entitled "One of the Moynihans," which outlines the high spots of his career. The story is one of such unusual interest that we reproduce it in large part.

Jerry started railroading in 1872, at the age of 16, with the Central of New Jersey. His brother Dan and his first cousins John and Michael Moynihan are honored veterans of the Central of New Jersey. After nine years' service on that railway, however, Jerry decided to go West and, in August, 1881, at the age of 27, he moved to Minneapolis. The superintendent of the M. & St. L. gave him a job switching in the "lower yard", where Jerry worked, schemed, lived and fought for 47 years. The "lower yard" served the flour milling district, which was just then beginning to make itself felt as a factor in the economic life of Minneapolis.

The Millers and the M. & St. L.

A definite and specific necessity prompted the building of the Minneapolis & St. Louis. It was projected to afford Minneapolis flour an outlet to the south where connection could be made with east and west lines not then entering Minneapolis. This would introduce a new element of rail competition and tend to force a more favorable rate for Minneapolis flour to the larger markets then dominated by the mills at Rochester, N. Y.

Minneapolis had to fight every inch of the way for supremacy in flour manufacture and inasmuch as lumber and flour supplied fully 70 per cent of the community's payroll money at that time, the early construction of the M. & St. L. was largely financed by Minneapolis business men on a basis of local patriotism. Thus, from its very inception, that railway was in a particularly intimate relationship with Minneapolis industry and recognized an especially strong obligation to accord efficient service.

In 1881, the Minneapolis flour mills had just about shouldered all the original sawmills away from the strategic location on the west shore of the Mississippi at the head of St. Anthony Falls. There were 15 mills at the falls at this time, operated by 12 companies. Because of the requirements of water power distribution, the mills were huddled together along the canal, which closely parallels the bank of the river.

The milling district is not only restricted on one side by the river, but on the other by an arterial street of the city, which had been well built up before flour sup-

planted lumber at the falls. Consequently, the district is a long, congested strip where all milling sites are built upon and fully utilized for production, with practically negligible facilities for grain and flour storage. To keep the mills going, it is necessary to have wheat flowing freely into the district, while to prevent shutdowns through a backing up of output, flour has to be loaded into waiting cars as soon as packed. Taking away is a continuous process.

This may sound simple, but, in 1881, it was far from that. The pioneer industries at the falls were all sawmills. Their development there began before the railways reached Minneapolis. Their raw material was floated to their chutes; their product was taken away by trucks or rafts. Prompt, reliable rail service in and out of the district was not necessary or available when the district was first developed and by the time the millers had nudged out the sawyers enough to make flour pre-eminent, the district had already been shaped without much reference to railway service.

To complicate the matter still further, those were the days when land was cheap, when industrial development was not so closely tied in with transportation as now and when railway expansion was more along the line of developing territory rather than of serving industry.

As a result, when the railways reached into the milling district they were put to it to find the way. They went in as individual, rival carriers; the water power company which originally controlled practically all the land took no active part in planning well-ordered, consolidated terminal facilities for serving the district as a whole. Rails were laid where immediate necessity seemed to indicate and here and there among the network of tracks which grew up there were left little plots or triangles of ambiguously owned ground between or overlapping the rights of way.

Just below the falls, the river swings off to the eastward so that there is a wider space between the shore line and the city street to the west. The M. & St. L. main line and receiving tracks occupied that portion of its terminals nearest the street and the railway was fortunate in securing for its delivery yards much of the wider area created by the bend in the river. Its fanwise storage tracks lead into the milling companies' individual service tracks at a point about 150 yards below the mills. This constituted the "lower yards."

A Man Among Men

Jerry's work was such that, in a few months, he was made yard foreman. Promotion to assistant yardmaster in charge of the "lower yard" followed soon after. In 1883, W. H. Truesdale, then head of the road, organized the Railway Transfer Company, as an operating organization for the "lower yard" and appointed Jerry superintendent of the new company. Everyone was satisfied by the appointment and their satisfaction has lasted for 45 years.

The men in the yards found that the new boss proposed to get things done and that no consideration of formality, or rank were to stand in the way. With a "super" who didn't stand back on his dignity and merely issue orders, but who rode the footboards, made coup-

lings and threw switches when necessary and handled one end of the long yards while the yardmaster handled the other in rush hours, a "super" who was on the job early and late and who habitually cut out his lunch hour in order to keep things moving, the whole transfer crew—clerks, switchmen, brakemen, firemen, hostlers, "hoggers"—all fell into line and things were done.

This loyalty was cemented through the years, but, in 1909, Jerry came through a real ordeal with colors flying. The switchmen and railways had been negotiating a new wage scale all summer without result and early in November the union called a strike. It was a bad time to impede traffic movement. The new crop was pouring into the market, heavier grinding meant more flour to be taken away, mercantile shipments in anticipation of Christmas trade were large and shortening days of the autumn demanded more service to the gas plant.

Nobody likes a strike. It was particularly hard for Jerry Moynihan because he had come up through the yards and thoroughly understood the switchmen's point of view. But he had been made an executive long before the switchmen were unionized and so there were no conflicting claims upon his loyalty. It was his business to keep the yards going even though some of the men who were his friends and helpers before the strike might be offended. The yards were not tied up; service was better than clients had reason to expect; for the superintendent worked night and day in any capacity where there was need "to keep out the knots." It is to the credit of the men that they understood Jerry's position and fully appreciated his devotion to his job of serving the mills. He had always understood the men under him; he had been a fair boss who prized and retained the hearty respect of his crews. The strike held on for several weeks which were weary ones, but the Transfer operated and there were no mysteriously blocked switches, inconveniently disconnected couplings or other war measures applied by the strikers in its yards.

At the testimonial banquet, the Reverend J. M. Cleary told a story of Jerry's way of handling men that shows how some of his success along these lines was obtained.

It was in the days when it was mighty easy to get a drink at near-by open bars and one of the Transfer men—let him be known by the fictitious name of Mike—got to slipping away from the job and hoisting a few. Remonstrances and warnings didn't seem to do any good and the climax came when a passenger train was held up because Mike was literally asleep at the switch with a full tank. Naturally, he was discharged on the spot. It was hard for him, winter was coming on, his thrifty little wife had been scrimping to pay for a home and between the husband's bad habits and the payments there was little provision for a period of unemployment. Father Cleary was appealed to but declined to act as a mediator in view of the serious character of Mike's transgression. So it went on for two months.

One day Jerry called up the pastor and asked him to bring Mike into a conference. In response to a question, he denied vigorously that he contemplated putting him back on the job, though he announced that the man he had put in Mike's place was even worse. The conference assembled and Jerry Moynihan declared himself to the effect that Mike was all through; a man who would drink and sleep on a switch job deserved no consideration; so far as the superintendent was concerned, he would never put Mike back. However, the job had to be filled and Father Cleary was thereby ap-

pointed for the position; he was to go immediately upon the payroll and the pay checks were to be made out in his name. But, in case the good father was too busy with his parish work to come down into the yards and set switches, Superintendent Moynihan might consider a substitute, provided the priest would stand sponsor for him. And that is the way it worked out. Mike came back but he never saw a pay check and never asked for one. The check was made out to "J. M. Cleary, switchman" and was promptly signed over each pay day to Mrs. Mike. The little home was paid for and the husband remained straight for the whole period of the arrangement.

Serving the Millers

The Transfer was the railway's agency of direct service to the mills. Consequently, what Jerry could do to help the mills was in the line of work for his own organization. He and his crew kept the knots out of the yards, spotted wheat cars and empties and took away the loads with efficiency and prompt precision, but service didn't stop there. Jerry had adopted the mills; he was "for them" all the way.

The first generation of Minneapolis "big millers" were then in the saddle and they had their offices in the mills themselves. It wasn't long before they began to appreciate the fact that the Transfer superintendent was a real person and a strong driving force in securing for them better service than they had ever known. Jerry became a character in the district and it was noted that he possessed a hard-headed, native shrewdness which might be worth consulting on other matters than transportation. But it was also observed that his advice, somehow or other, many times resulted in increased patronage for his company. And that was all right, for the advice was good. He was "working for the house."

A track which served one of the mills from a trestle on the river side went out of commission and a shutdown was in prospect. This mill had no facilities for direct delivery to a Transfer track, though one ran past it on the blind side. "Run a conveyor across your packing floor to our side and we'll take it away for you" suggested Jerry and the mill kept on running while the Transfer picked up a good little jag of business.

Railway competition in the district became more strenuous as Minneapolis flour marched on to dominance of world markets and rail service requirements increased. Situations arose which were not to be settled by polite, academic discussion, calling for quick decisions and prompt action. They have become a part of the mill district tradition and have lost nothing in the telling through the years.

There was a notably bloodless battle of the cross-over switch in which Superintendent Moynihan won acclaim as the victorious generalissimo. It seems that a competitor, which had built a bridge and come into the district from the river side, quietly arranged to tear out the switch connecting the Transfer tracks with the lead into an important group of mills and to put in a switch of its own. As the story goes, Jerry noticed stacks of new ties and rails on the competitor's right-of-way near the point of attack and his suspicions were aroused. That switch was the key to a large share of the Transfer's business. Inquiry speedily strengthened the superintendent's suspicion into a moral certainty.

It was late on a Saturday afternoon and railroading and milling company officials were hard to reach but the evident plan was for the switch to be replaced on Sunday when the courts would be closed and it would

be difficult to secure an injunction in time. So Jerry got busy and moved fast.

In this case, as in many others, Jerry used his head-piece to good advantage. When a work train rolled in over the competitor's track at 4 o'clock Sunday morning and unloaded 200 track workers, there was nothing they could do. For, in order to take out one switch and replace it with another, the tracks must be clear and in this case the rails for a hundred yards or more on each side of the switch were anything but clear. They were jammed full of big, heavily loaded wheat cars with steaming locomotives at each end of the string.

Jerry sat in his cubby hole in the Transfer offices and saw his strategy work out exactly as he had planned. The track crew stood around in idle groups, the bosses stormed and swore but the blockading cars were not moved. About 10 a. m. the attempt was given over and the competitor's force withdrawn. So runs the tradition and it is a fact that that switch has never been changed over to divert business from the Transfer.

Getting Results

In the 45 years of Jerry Moynihan's service as superintendent, the Railway Transfer handled 6,437,530 cars, a yearly average of 143,854. The daily average in 1883 was 239 cars. Today the Transfer capacity has more than trebled; it has handled as high as 905 cars in a day. When the Transfer was organized, cars were built to carry not to exceed 500 bushels as against 1,200 to 1,500 bushels to the load for the last decade and a half, so that the increase in the number of cars handled at the maximum should be multiplied by from two and a half to three in order to express the actual growth in tonnage.

Such a movement involves extensive records but Jerry never had a roll-top desk or a desk of any sort. For 45 years all his inside work was handled at a plain oak table with two small drawers. He directed his clerical force as an efficient executive and his table was kept clear. He was always in and out and around and his skill in operating the particular kind of transportation he was selling was recognized by the millers he served as one of their important assets.

In view of the physical lay-out in the mill district, an expansion of milling capacity was not a matter of merely taking another site and building upon it, for switching service was fully as important a factor as power. So when one of the larger companies was faced with the necessity of adding at least 5,000 barrels to its daily capacity, the president, believing that no further expansion was possible on the west bank, asked the Transfer superintendent to scout around on the other side of the river for a site where good switching facilities could be developed. This would mean an increased possibility that some of its switching service might be diverted to other companies and Jerry's business sense was called into play again to avert such a calamity.

Here is what he finally proposed: There was land down river from the mills which had never been built upon because it was too far removed from the power canal. This tract was on the mill tracks leading from the Transfer yards. Build an elevator on these tracks so that cars of wheat could be run in from the Transfer side, unloaded and then pulled on into the mills as empties to be loaded with flour, the elevator to clean and grade the wheat and deliver it to the mills by spouting.

"Well, Jerry, you certainly look after your own company," remarked the mill president when the plan was laid down to him. But the elevator was built and proved

so satisfactory that a few years later a second elevator had to be built for simple storage and delivering grain by an underground conveyor to the first elevator for working and spouting into the individual mills.

By this plan the milling company was able to increase its capacity several times more than the desired 5,000 barrels and speed up both its in and out traffic. And the Transfer had more business instead of less.

As an evidence of the steady growth of the Transfer's business under the superintendent's aggressive policies of service, co-operation, accommodation and perpetual watchfulness for the best interests of his organization, there is an interesting series of comparative figures. From 1895 to 1917, when the government assumed charge of operation, all mill district switching was handled by three companies. Earnings reports filed by these companies with the state railway commission are public property. The figures are bulky but the percentages are more significant. They show that in the period reported, the Transfer's share of the total business increased by 71 per cent. In the 36 years following 1881, the two competitors of the Transfer increased their business 32 per cent and 1 per cent respectively. The Transfer's increase was 307 per cent.

Friend of Prominent Men

Jerry's files contain many interesting letters of commendation from outstanding railway executives. Among those who have known his work and commended him for it are W. H. Truesdale, chairman of the board, Delaware, Lackawanna & Western; W. T. Noonan, president, Buffalo, Rochester & Pittsburgh; C. W. Huntington, deceased, former president of the Virginian. Men in other industries also know and appreciate Jerry. William Coyne, vice-president, E. I. Du Pont de Nemours & Co., is one of those whose letters show more than a casual appreciation. There are, in addition, a large number of letters from the Minneapolis millers, from publishers, judges and congressmen, commenting upon the qualities of the man who made a big job out of what might have been only a small one.

Upon the occasion of his retirement from the active superintending of the Railway Transfer Company, it seemed that the whole town of Minneapolis vied to do him honor in the form of banquets and gifts, and his employers, at the instigation of W. H. Bremner, receiver of the M. & St. L., had the book printed in commemoration of the event and of Jerry's achievements.

But Jerry wears all his honors lightly. The honor that he esteems most is to walk through the "lower yards" and view the prosperous milling district, with the knowledge that he has contributed much to its success.

* * *



Photo by Atlantic Coast Line
On the Atlantic Coast Line near Wilson, N. C.

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Samuel Rea, Former P. R. R. Head, Dies

Outstanding transportation executive and engineer directed construction of the Pennsylvania's New York tunnels

SAMUEL REA, outstanding transportation executive and engineer who retired from the presidency of the Pennsylvania on October 1, 1925, died on March 24 at his home in Gladwyne, Pa., after an illness of several weeks. He was 73 years old and since his retirement at 70, under the pension rules of the company, he had continued as a director of the Pennsylvania and its subsidiaries.

In a remarkable record of accomplishments, the most noteworthy achievement of Mr. Rea's engineering genius was his direction of construction work in connection with the Pennsylvania tunnels under North and East rivers at New York. These gave the Pennsylvania its all-rail connections to Manhattan. In 1892 Mr. Rea had been assigned to make a study of the railway terminal and underground systems of London, and later he made a similar investigation of the underground lines in Paris. When plans for the New York tunnels were prepared, he was made supervisor of their construction. In 1910 he was given the degree of Doctor of Science by the University of Pennsylvania in recognition of this work.

Mr. Rea became president of the Pennsylvania on January 1, 1913, and thus during his term extending through 1925, he piloted the property through a series of eventful years characterized by the vicissitudes of the federal control period during which there has arisen for solution the problems of recovery after the return of the railroads to private control, the problems of the restoration of employee morale, and the problems of so guiding the country's largest railroad system as to meet the new requirements of the Transportation Act of 1920.

He was first employed by the Pennsylvania in 1871 as a chairman and rodman but left in 1873 because of the financial panic of that year. He was again in its employ from 1875 to 1877 and from 1879 to 1889 but his continuous employment dates from 1892 when he became assistant to President Roberts. Thus his association with the Pennsylvania covered a period of more than 57 years, the latter 36 of which were continuous.

Mr. Rea was also well known in the financial world since he was for a time a partner in the investment house of Rea Brothers & Co. of Pittsburgh and a member of the New York Stock Exchange for a period of

12 years. The Pennsylvania utilized his combined engineering and financial ability when, prior to his election to the presidency, he served the road as vice-president in charge of both the engineering and accounting departments.

Recognized throughout the country as an able transportation executive, Mr. Rea was offered the presidency of the Southern Pacific by Speyer Brothers and Collis P. Huntington in 1899 and in 1903 he was offered the presidency of the New York, New Haven & Hartford by J. P. Morgan. When the latter and James J. Hill battled with E. H. Harriman for control of the Northern Pacific, and the compromise resulted, Mr. Rea served as one of the "peace directors" on the Northern Pacific board. During the war he was a member of the Railroads War Board.

Samuel Rea was born at Hollidaysburg, Pa., on September 21, 1855. His father, James D. Rea, died in 1868 and this necessitated Mr. Rea's going to work at the age of 13. He entered railway service three years later when he became a chainman and rodman on the Morrison's Cove branch of the Pennsylvania. Within two years, however, the retrenchments accompanying the panic of 1873 forced him out of this position and he entered the employ of the Hollidaysburg Iron & Steel Company as a clerk. In 1875 he re-entered the service of the Pennsylvania in the engineering department and was for the two following years assistant engineer in charge of the construction of the chain suspension bridge over the Monon-

gahela river at Pittsburgh, Pa. Upon the completion of this project in 1877 he was appointed assistant engineer in the work of locating the Pittsburgh & Lake Erie and remained in this position until the completion of the line. When this road opened for traffic he was appointed cashier in its freight office at Pittsburgh and also its first ticket agent.

In 1879 Mr. Rea returned to the Pennsylvania as the engineer in charge of surveys in Westmoreland County and of the rebuilding and line revision work on the Western Pennsylvania. In 1883 he was transferred to Philadelphia as assistant to the vice-president with the title of principal assistant engineer. In 1888 he was appointed assistant to the second vice-president but in the



Samuel Rea

following year he resigned to accept the vice-presidency of the Maryland Central in which post he was also chief engineer of the Baltimore Belt. The latter, which is now a part of the Baltimore & Ohio, he located and placed under construction. He resigned in 1891 on account of ill health and, after refraining from active work for a year, resumed the practice of his profession.

Returning to the Pennsylvania on May 5, 1892, after an absence of three years from its employ, Mr. Rea was chosen assistant to the president. On the very day of his employment he left for London, where, by direction of President Roberts, he made the European studies, mentioned in the foregoing. Later in 1892 Mr. Rea was assigned to the general construction work then in progress, the acquisition of right-of-way and real estate in that connection, the promotion of all new lines and branches and the financial and corporate work incident thereto.

On February 10, 1897, Mr. Rea's title was changed to first assistant to the president and on June 14, 1899, he

was elected fourth vice-president. On October 10, 1905, he was promoted to third vice-president, to be further advanced to second vice-president on March 24, 1909. In this latter position his duties were extended to cover the direction of both the engineering and accounting departments. He became first vice-president on March 3, 1911, and from May 8, 1912, until his election to the presidency on January 1, 1913, he was vice-president in charge of New York tunnel and terminal improvements.

Mr. Rea was also interested in the rapid transit tunnels built by the Hudson & Manhattan between New York and New Jersey and largely through his influence the Pennsylvania permitted the Hudson & Manhattan to build underneath its station in Jersey City and to use its tracks in the open between there and Newark.

An extended review of Mr. Rea's career and accomplishments in transportation and engineering appeared in the *Railway Age* of September 26, 1925, page 563, at the time of his retirement from the Pennsylvania presidency.

Railways and Highways*

How the development of motor transportation has affected the railways—Regulation and taxation discussed

By Ralph Budd

President, Great Northern

IT is probably because of the evident futility of doing anything about the growing use of the private automobile that practically every discussion concerning the loss of railway passenger business turns to the inroads made on that business by the motor coach. While motor coaches carry only 3 per cent of the travel and privately owned automobiles 90 per cent, talk about the effect of these two forms of travel upon the railways is just about reversed in percentage, at least 90 per cent of such discussion being about motor coach competition.

Certain outstanding reasons are responsible for the rapid increase in travel by motor coach, but they can be summed up by saying that in many respects and under many circumstances the advantages of traveling by motor coach approach reasonably near to those of the private automobile.

In a great many instances the coach affords practically all of the convenience of the private automobile and avoids the delay and embarrassment of trying to find parking space in the modern city. It has, besides, the great advantage of being the cheapest and, with the exception of the airplane, the quickest mode of travel in existence.

Because of these advantages, the number of motor coaches in the United States has increased until now there are 92,000 of them. About half of these are common carriers, that is, they take any and every passenger offered, while the other half are non-common carriers, being principally school and hotel coaches.

The effect of automobile and motor coach travel on the railways of the country has been to reduce the railways passenger revenues by more than one million dollars a day. The actual passenger earnings of the railways in 1928 were almost four hundred million dollars

less than in 1920, notwithstanding the fact that the population has increased by about 15 percent during those years.

Anyone who has followed the growth and development of public service corporations must realize that the idea underlying their operation is the greatest service to the public at the lowest cost consistent with continued good service. When there is so general a shift as that of the transfer of passenger travel from railways to highways, it is needless to debate whether or not there are advantages in the mode of travel that has become popular.

The public has reached its own decision, which, after all, is the last word in such matters, and the only argument that will avail anything on the part of competitors is something in the form of a superior service.

The real question for consideration now is: "What of the future of common carrier operations on the highways?" The future depends mostly upon the policy language: "It is hereby declared to be the policy of wards that industry.

The necessity for regulation of common carrier traffic on the highways is generally admitted, and out of the 48 states, 40 or more have state regulation, which in most instances is quite complete. There is, however, no such regulation of interstate traffic, but the necessity or at least the desirability of such regulation is well recognized by practically everyone who has given thought to the subject.

Federal Legislation Favored

Some of the difficulties in reaching an agreement on the form of the proposed legislation have been whether the Interstate Commerce Commission should adopt towards the motor coach industry the same policy that has been prescribed for the steam railways and the waterways, whose commerce it regulates, and the manner in

* Abstract of an address presented at the annual dinner of the Transportation Club, Toronto, Ont., on March 21.

which the Interstate Commerce Commission and various state commissions shall divide or share their jurisdiction. The Transportation Act of 1920 contains the following language: 'It is hereby declared to be the policy of Congress to promote, encourage, and develop water transportation, service and facilities in connection with the commerce of the United States, and to foster and preserve in full vigor both rail and water transportation.'

This short clause in the Transportation Act is, in the last analysis, the rock on which federal legislation for control of motor coaches in interstate traffic has split.

The Interstate Commerce Commission early in 1928 made a report based on extensive investigation of highway traffic in which it recommended federal legislation placing interstate traffic under the jurisdiction of the Interstate Commerce Commission. The report contains the following recommendation: "Public policy demands the fostering and preserving in full vigor of motor vehicle transportation as well as rail and water transportation. Section 500 of Transportation Act, 1920, should be amended to include motor vehicle transportation in the declaration of policy there made."

The representatives of the steam railway group have not been willing to accept the recommendation of the Interstate Commerce Commission with respect to this declaration of policy. Motor coach operators, but more particularly the representatives of the automotive industry as a whole, have felt that without such equality in the declared policy of regulation, the industry could not possibly grow and reach the high state of development that it is capable of doing. Not all railway executives agree with the position just stated, and some think that the recommendation of the Interstate Commerce Commission is reasonable and proper.

Obstructive Tactics Unwise

In my opinion, the railways, like all other public utilities, must rely for their continued success and prosperity upon the advantages of the particular service they render. Any attempt to stifle and hinder the growth and development of a competitor by restrictive legislation or excessive regulation would be unwise.

I favor federal legislation which will place the common carrier users of highways under the regulation of state authorities, with the requirement that certificates of necessity and convenience for interstate operations shall be obtained from the Interstate Commerce Commission. As 75 or 80 per cent of the motor coach traffic is intrastate and practically all of the highways used belong to the states, it seems advisable and right that as much authority to control interstate highway commerce should be given to the states as can be permitted under the Constitution, and as is consistent with proper regulation of the business.

Such legislation and regulation, if based on equitable principles, as we assume it will be, will promote rather than hinder the development of the motor coach industry, because it will encourage the organization of strong, well-managed companies and discourage the multitudinous, poorly financed and poorly operated concerns which are wasteful because of the excessive amount of competition afforded and the poor methods of operation followed.

There is probably more discussion at present on the question of taxation of common carriers by highway than on any other phase of the subject of highway transportation. There are almost as many different methods of taxation as there are states. Practically all the states have a tax on gasoline. This ranges from 2

cents to 5 cents per gallon. Except for the gasoline tax, the most generally accepted form is an ad valorem tax on the vehicles used. In Minnesota, this tax is 10 per cent of the value per annum.

On a new motor coach, the total tax in Minnesota, including the gasoline tax, is about \$1,500 per year. This is about as high as the tax in any state in the union, and much higher than in most states.

It might appear that the simplest way to drive motor coaches and trucks from the highways of the country would be to make the taxes so high that they could not do business. Here again the amount and method of calculating the tax become questions of public interest.

The indisputable fact seems to be that, for certain short haul travel and transportation, motor vehicles on the highways are able to perform the service more economically than railways can, and so the question is whether the public, having built the highways, shall avail itself of this cheap form of transportation or whether it shall keep the highways for the exclusive use of the privately owned automobiles.

The automobiles, of course, would be driven for business as well as for pleasure, and that introduces one of many questions concerning the rights of taxpayers who do not choose to drive their own automobiles or trucks. Those who prefer to use public conveyances may well contend that they have the same right to benefits from the highway by traveling in a motor coach or shipping in a truck that the individual has who runs his own automobile or truck.

Probably the safest and fairest guide or rule of taxation is: (1) that commercial vehicles shall pay the same gasoline taxes as other users; (2) that this tax shall be used for building and maintaining highways; and (3) that the tax on all vehicles for the use of highways shall represent as nearly as may be the proportion of such use that each enjoys.

Assuming that regulation along constructive lines and taxation along similarly fair lines are applied, the character of traffic which is going to be handled on the highway and that which will be handled on the railway will adjust themselves along wholly economic lines. The railways are supreme in the long haul bulk freight traffic, as well as for the long ride passengers, especially if such passengers travel in parlor or in sleeping cars.

The very short haul business seems to be best handled by private automobiles, except in busy centers where railways, subways, and motor coaches serve to avoid congestion.

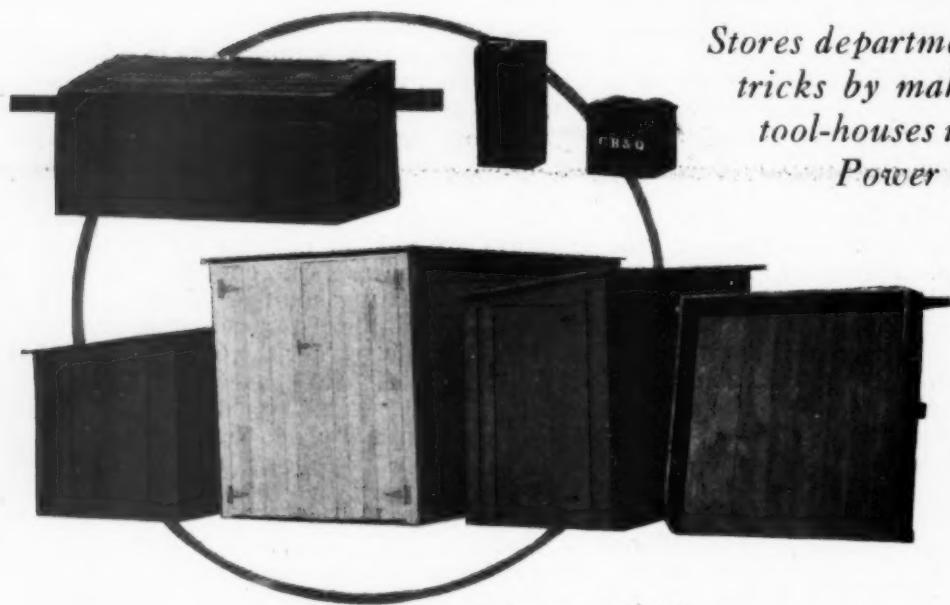
The intermediate travel, as well as the short haul on freight, seem destined to go more than at present, and to an extent it is impossible to estimate to the highway.

Automotive Industry Aids Railroads

I have indicated the loss of over a million dollars a day in passenger travel on the railways. It is not fair to discuss only the loss to the railways by reason of highway travel. I am of the opinion that the automotive industry has done more to benefit the railways than it has to injure them, and that today the railways would suffer along with nearly all other phases of our modern civilization if the automotive industry could by any stretch of the imagination be paralyzed over night.

What would happen in such eventuality is the true gage of whether the automotive industry is a help or a hindrance to the railways, and I believe thoughtful people, when considering the much discussed question of the injuries done to the railways by highway competition, would agree with me, if they will keep in mind the benefits.

Burlington Puts Waste Lumber Back to Work



What Happens to Old Lumber at the Q Mill

Stores department shows old sticks new tricks by making boxes, doors and tool-houses in centralized shop—Power tools save labor

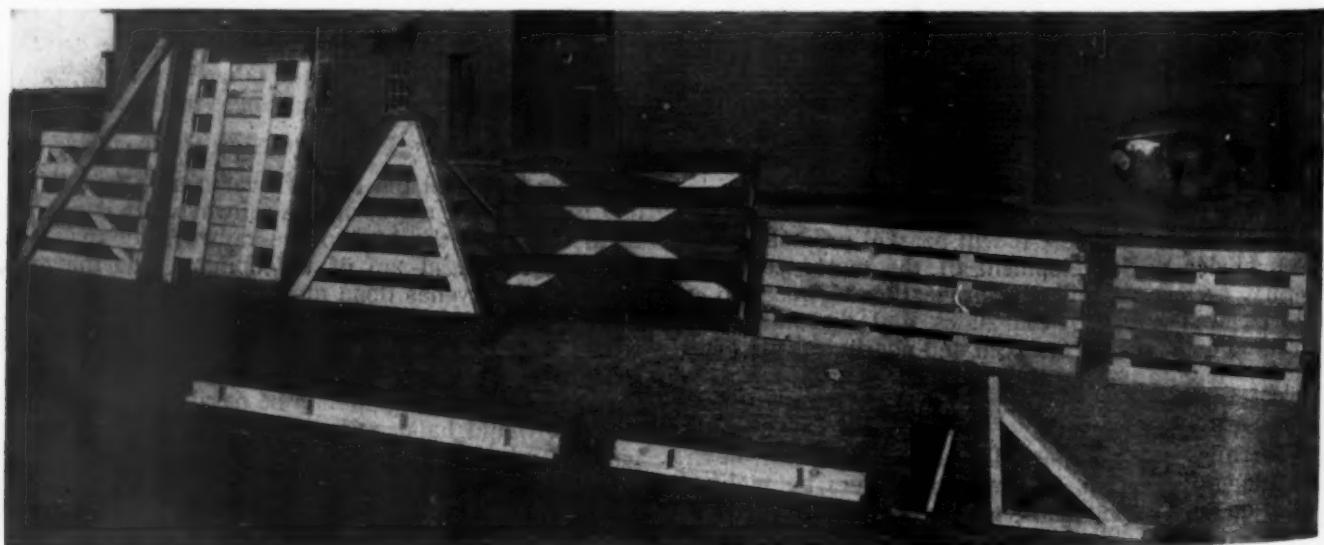
THE stores department of the Chicago, Burlington & Quincy has gone into the carpentry business.

For the past three years, it has been running a shop at Havelock, Neb., near Lincoln, where nearly everything in the lumber line is made, from shipping crates to telephone booths, engine-house doors and garages. Now when the mechanical department wants ice-boxes, or the division roadway forces want stock-yard gates, machinery unloading platforms or section tool-houses or similar buildings, it does not assign carpenters to build them, but instead orders them from the stores department in the same way that it orders bolts or rivets, and the stores department fills the orders in a carpenter shop of its own. Here are standard plans to save time in planning, milling machinery and power

hand tools to save labor in fabrication, and most important, old lumber from cars and piles of waste from other work to use in place of new lumber. The result is a saving to the company in carpentry work of from 25 to 35 per cent, or over \$10,000 a year.

Use Waste Lumber

It was primarily to use waste lumber that this carpentry shop was begun. Havelock is just west of the Missouri river and is the location of the main car and locomotive repair shops for the Burlington's lines west. Several hundred cars are dismantled at this point and a comparable number are repaired or built new each year. As a large percentage of this equipment is of wood, the old cars produce several thousand feet of second-hand lumber a year in the form of old posts and braces, sills, doors and sidings. In addition approximate-

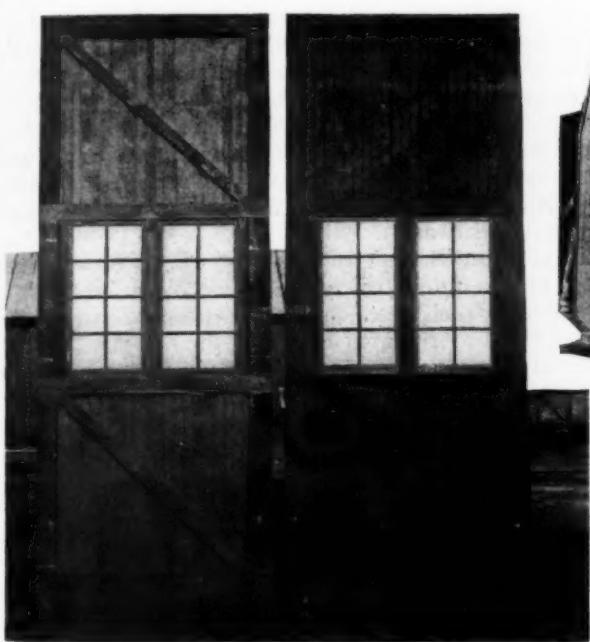


Some Standard Items from the Q Mill: Left to Right—Stock-Yard Gates, Cattle Guards, Loading Gates, Explosive Blocking and Shipping Braces

ly 2,000,000 ft. of lumber and timber in various states of preservation have been released on the lines west in the last few years as a result of replacing wooden trestles and buildings.

Several years ago the Burlington decided that much of the old lumber could be reconditioned economically by removing the nails and sawing off the bad ends and splinters, and the stores department, having been assigned this work, established a plant at Havelock for the purpose. This plant consists of a large circular saw for heavy timbers and a cut-off saw, which are installed in a frame building handy to the lumber yard. Its operation produced quantities of well-seasoned lumber

during the construction of cars or in milling the Black Hills production, there was a large inducement to make things out of it, and a foundation for the carpentry shop operation was laid, therefore, by the stores department undertaking to build boxes for crating material and similar articles which it needed in its own work or which it was customary for the stores department to furnish other departments. As the work progressed, consideration was given to increasing the operations by centralizing at Havelock a great deal of the carpentry work which it was customary for each division to do with its own forces. Previously the master carpenters would survey their territory periodically and see what building



A Pair of Standard Engine-House Doors and a Standard 12-ft. by 14-ft. Railway Tool-House, Factory-Built

work was needed on the division, and each month, they would make requisitions for lumber of standard sizes and lengths for this work.

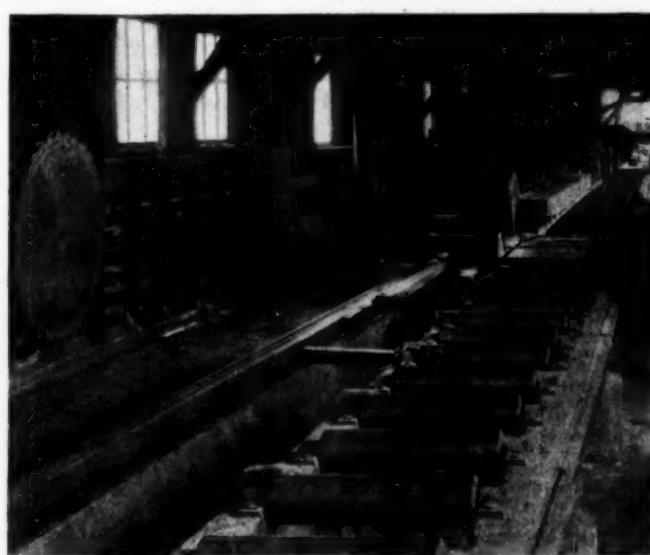
Ready-Cut Buildings Made

For large jobs, the material would be shipped direct, and all cuttings, framing, matching, etc., would be done with hand tools by crews of men shipped out to the work from headquarters. For the smaller work, the material would be shipped to the division bridge and building shop where a considerable stock of various sizes and

adapted for use locally or for shipment in place of new lumber, but it also produced quantities of odd lengths and short ends which were too good to burn, yet impracticable to recover unless they could be converted into articles at that point.

Similar material was being produced at the car tracks when new lumber was cut up and milled for repairing and building equipment, and this accumulation of short ends from new stocks of lumber was enlarged with the adoption of the practice of buying unfinished lumber produced in connection with tie production in the Black Hills. As described in the *Railway Age* of October 10, 1925, when the Burlington found that it could not encourage tie production in the Black Hills of South Dakota unless the tie producers in that region were given a market for lumber produced with the ties, it arranged to buy quantities of this lumber itself and put up a mill at Havelock to condition it. This mill is near the resaw plant and consists of an automatic cut-off saw, a rip saw, a large planer, a "sticker" and a portable cut-off saw. Because of the primitive methods under which the Black Hills lumber is produced, it comes to the mill in a great variety of lengths as well as thicknesses and, while purchased on the basis of the longest standard lengths of required grade that can be cut from each board, a pile of such lumber produces an unusually large quantity of end pieces and stripings that can be converted into articles not calling for the longer material.

With a large quantity of reclaimed lumber at hand, and these cuttings from new lumber produced either

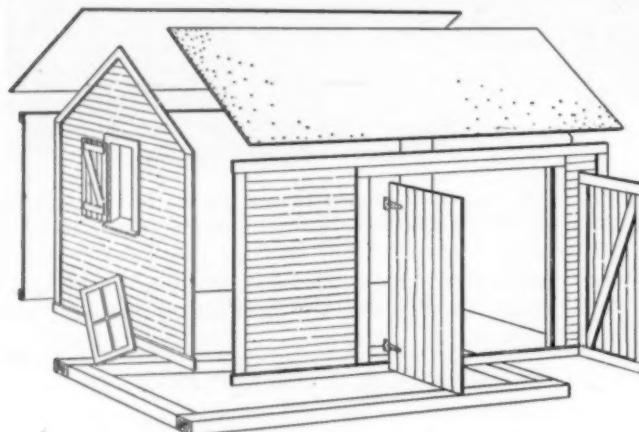


Where Used Lumber is Reclaimed. After Pulling All Nails, the Wood is Passed Through the 50-in. Rip Saw in the Foreground and Then Cut to Length by the Cut-Off Saw in the Background

lengths of lumber was maintained. These standard sizes of lumber would be cut and framed by hand for each particular job. In both cases, the short ends would usually be wasted. It was thought that by centralizing this work at Havelock, it could be done in less time and there would not only be less waste of lumber in the construction of the articles, but that waste lumber from other sources could be utilized in large part to build them. There was the problem of erection to be considered, but the solution of this was to adopt a sectional plan of construction for all articles and buildings which could not be shipped and placed intact.

Power Tools Save Labor

Thus, in addition to the resaw plant for reclaiming second-hand lumber, and the planing mill for reconditioning Black Hills lumber, there grew up at Havelock a third operation in the form of a carpentry shop which is virtually a box and building factory. Like the other lumber working shop, this shop is not pretentious in appearance, consisting simply of a frame shed, but it is arranged for systematic work under the direction of an experienced carpenter and is equipped with power hand tools for all needs. The tools comprise, in addition to



Roadway Tool-Houses and Similar Buildings are Erected by Bolting Together Standard Built-Up Sections Shipped from the Mill

the machinery at the mill, three electric hand drills, two electric hand cut-off and rip saws, and one $1\frac{1}{4}$ -in. electric hand saw. To facilitate the work, there is a standard plan for every article, drawn to allow the use of short ends as far as possible, and listing every stick going into an article as well as any hardware to be used with it.

The number and variety of articles constructed in the course of a year at the carpentry shop, at present rates of consumption, and the savings in cost are as follows:

Statement of Carpentry Shop Work

Description	Number per year	Unit saving	Total saving
Garages	25	\$34.00	\$ 850
Toilets for laborers	20	15.00	300
Section tool-houses	50	33.00	165
Hose houses	20	10.00	200
Hose cart houses	20	12.00	240
Roundhouse doors	100 pr.	85.00	8,500
Merchandise loading gates 4 ft.	1100	.09	99
Merchandise loading gates 8 ft.	1500	.13	195
Telephone booths	50	.95	47
Engine ice-boxes	400	.40	160
Stock-yard gates	75	5.00	375
Stock chute gates	75	2.50	187
Explosive blocking 4 ft.	1100	.07	77
Explosive blocking 8 ft.	1000	.09	90
Stock car gates	100	.45	45
Storehouse racks	500 l. ft.	.60	300
A frames for cattle guards	100	1.30	130
Automobile unloading platforms	5	38.40	192
5-gal. water coolers	100	1.65	165
Shipping boxes for oil cans	25	.90	22
Shipping boxes for fuses	100	.50	50

Shipping boxes for torpedoes	100	.42	42
Tool-boxes for extra gangs	25	2.85	71
Rubble car dump boxes	100	2.25	225

\$12,724

The carpentry shop does no work except upon receipt of an order from the store for a specified quantity of a designated article for building. When this order is received, the bill of material is taken from the standard plan for that article, and the lumber is gathered from the lumber yard where it has been sorted previously according to usable length and width. In all cases, it is understood that old lumber is to be used as far as possible. This lumber, which is gathered in quantities sufficient for several articles of the same kind, is then carried to the planing mill on trailers pulled by tractors and is sawed to the proper overall dimensions and the job charged with the cost of this work. It is then carried to the carpentry shop by a tractor and trailer, where the carpentry forces, following the plan, construct the articles. All sectional buildings are properly fitted, bored and marked so that they may be assembled and bolted by section men without any carpentry work in the field, while roundhouse doors are built complete with all necessary hardware.

An account is kept of the cost of all material and labor, plus a fixed overhead for each job, and this is compared in each case with an accepted estimate of the cost of building the articles under the old plan. It will be noted from the figures given that the carpentry shop is saving 25 to 35 per cent of the original cost of the work, while in some instances, the saving is much larger. This results from doing the work in larger quantities than is possible when division gangs do it, from the use of power machinery for all cutting and framing and by the utilization of old lumber and the cuttings from new lumber. It is estimated that salvage lumber comprises from 50 to 75 per cent of all lumber used.

The plant is operated under the direction of J. G. Stuart, general storekeeper, and uses plans drawn by the building department.

* * *



Florida East Coast Photo
On the Florida East Coast at Miami, Fla. New
Miami Court House in the Background

M-K-T Lines Have Good Year

*Locomotive modernization increases average tractive power
5 per cent—All indices of efficiency improve*

THE Missouri-Kansas-Texas Lines in 1928 showed material improvement over 1927 in practically all of the indices by which freight service operating efficiency is ordinarily gaged. An increase of 6.6 per cent in net ton-miles was handled with an increase of but 1.9 per cent in train-miles, 3.1 per cent in locomotive-miles and 5.1 per cent in car-miles; and an actual decrease of 1.1 per cent in freight train-hours. Car-miles per car-day and net tons per loaded car increased. Cars per train, net tons per train and train speed all showed increases of 3 per cent or more. Gross ton-miles per train-hour showed a 6.8 per cent improvement over the preceding year and coal (or its equivalent) consumed per 1000 gross ton-miles declined 5 per cent to the low figure of 96 lb. The details of these improvements are set out in Table I.

The improvement in freight service efficiency effected

Table I—Comparison of Selected Freight Operating Statistics

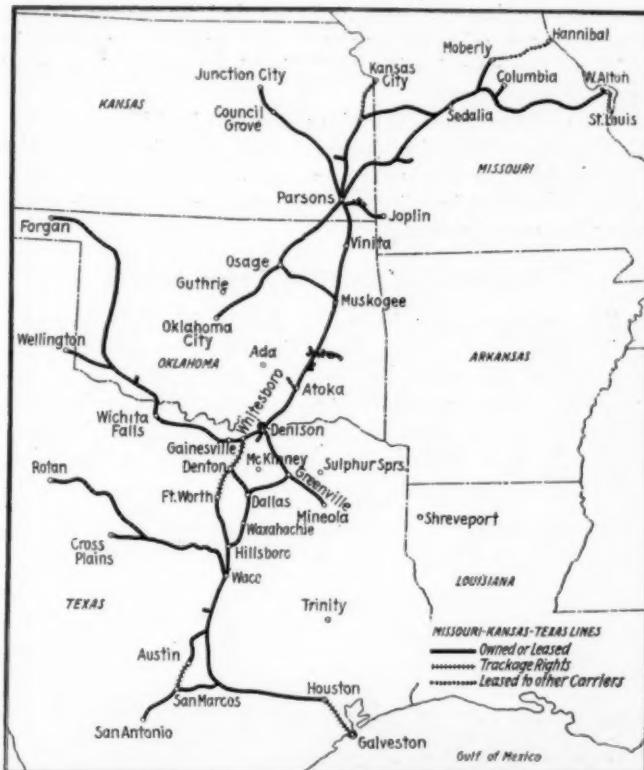
	1928	1927	Per cent of change Inc. Dec.
Mileage operated	3,176	3,176	...
Gross ton-miles (thousands)	10,599,611	10,037,040	5.6
Net ton-miles (thousands)	4,095,360	3,841,011	6.6
Freight train-miles (thousands)	5,322	5,222	1.9
Freight locomotive-miles (thousands)	5,566	5,398	3.1
Freight car-miles (thousands)	297,684	283,342	5.1
Freight train-hours	387,330	391,533	1.1
Car-miles per day	34.2	33.8	1.2
Net tons per loaded car	23.2	22.7	2.2
Per cent loaded to total car-miles	59.3	59.7	0.7
Net ton-miles per car day	470	458	2.6
Freight cars per train	56.9	55.2	3.1
Gross tons per train	1,992	1,922	3.6
Net tons per train	769	736	4.5
Train speed, miles per train hour	13.7	13.3	3.0
Gross ton-miles per train-hour	27,366	25,635	6.8
Net ton-miles per train-hour	10,573	9,810	5.7
Lb. coal per 1,000 gross ton-miles	96	101	5.0
Loco. miles per loco. day	63.3	59.4	6.6
Per cent freight locos. unserviceable	18.6	13.7	35.8
Per cent freight cars unserviceable	6.6	6.6	...

by this company in such a short space of time is the more significant since the road had already reached a high standard, comparatively speaking, in this respect. There were but nine railroads of those having freight revenues of over \$10,000,000 which in 1927 had a freight expense per gross ton-mile lower than that of the Missouri-Kansas-Texas proper (excluding the Texas lines) and four of these were heavy-traffic coal roads. There were but three of these large railroads which had lower average road freight wages, fuel, supplies and engine house expense per gross ton-mile than did the M.-K.-T. and all three of these were heavy-traffic coal roads. Only three Class I railroads in the Southwestern region

in 1928 showed a higher average gross ton-miles per train-hour, and the M.-K.-T. average was not greatly below any of these.

Locomotive Improvement Program Aids Efficiency

Considerable credit for the sharp increase in the indices of freight service efficiency in 1928 must be given to the road's improved power position. At the end of 1927 the M.-K.-T. lines had 308 road freight locomotives of an average tractive force of 49,882 lb., while at the end of 1928 the number of such locomotives had been reduced to 299, but average tractive power had increased to 52,488 lb., or 5.2 per cent. For this improve-



The Missouri-Kansas-Texas

ment the company's comprehensive program of locomotive modernization and improvement is largely responsible.

Tonnage of the Missouri-Kansas-Texas lines in 1927

Table II—Missouri-Kansas-Texas Lines, Operating Results, Selected Items, 1916 to 1928

Year	Mileage	Revenue ton-miles Thousands	Revenue passenger-miles Thousands	Revenue per ton- mile, cents	Total operating revenues	Total operating expenses	Net operating revenues	Operating ratio	Net railway operating income	Net after charges
1916	3,865	2,413,801	413,950	1.03	36,733,682	29,439,701	7,293,982	80.14	.....	—1,134,634
1917	3,866	2,986,316	467,764	0.97	43,344,150	33,146,111	10,198,040	76.47	.....	1,379,573
1918	3,861	3,263,766	561,969	1.10	54,138,799	47,329,033	6,809,766	87.42	.....	—1,457,793
1919	3,839	2,978,281	626,535	1.39	61,825,376	56,986,896	4,838,481	92.17	.....	207,336
1920	3,793	3,312,953	658,772	1.43	72,914,737	69,880,879	3,033,858	95.84	—1,147,835	—2,509,099
1921	3,784	2,761,318	412,496	1.59	63,020,975	50,055,784	12,965,191	79.43	8,780,928	5,901,349
1922	3,737	2,546,598	319,163	1.54	55,035,702	39,683,701	15,352,001	72.11	10,395,020	4,117,478
1923	3,360	2,789,306	335,122	1.43	55,987,918	43,628,319	12,359,599	77.93	8,809,589	2,734,921*
1924	3,193	3,068,948	311,585	1.38	57,309,345	39,732,035	17,577,310	69.33	12,587,498	5,508,438*
1925	3,189	3,317,095	279,287	1.32	57,492,914	39,618,128	17,874,785	68.91	12,825,624	6,117,619*
1926	3,189	3,432,552	264,990	1.31	58,100,766	39,979,070	18,121,696	68.81	13,000,263	6,357,468*
1927	3,189	3,379,653	237,134	1.30	56,181,528	39,339,174	16,842,354	70.02	11,699,973	5,994,810
1928	3,189	.....	.....	...	56,549,119	38,933,816	17,615,303	68.8	12,204,471	7,496,263

* After interest on adjustment bonds.

was divided as follows: Agricultural products, 20.52 per cent; animal products, 3.71 per cent; products of mines 26.52 per cent (coal 8.93 and crude petroleum 3.11 per cent); products of forests 3.31 per cent; manufactures and miscellaneous, 42.91 per cent, and L.C.L. 3.03 per cent. The M.-K.-T.'s percentage of high-grade commodities to total tonnage is remarkably high, not only when compared with the railroads generally but also with the average for its region and district.

The Missouri-Kansas-Texas lines have maintained a favorable transportation ratio for several years past. In 1923 it was 32.8. The following year it was reduced to 30.3 and from 1925 to 1927 inclusive it varied between 30 and 31. In 1928 total transportation expenses were lower than in 1927, while operating revenues increased. Hence a further improvement in this index will follow. The maintenance of way ratio to operating revenues in 1927 was 14.7 as compared with 13.5 in the preceding year. Rail replacements in 1927 totaled 197 miles as against 164 in the preceding year. Creosoted ties exclusively have been applied during the past few years (284 per equated track mile in 1926 and 1927). The average section of new rail applied has been 90 lb. Maintenance of way expenses decreased somewhat in 1928 as compared with 1927, in the face of increased operating revenues.

The maintenance of equipment ratio in 1927 was 18.5. This expense likewise declined somewhat in 1928. The final figures for the latter year will show, therefore, material decreases in all three expense ratios which enter into the operating ratio.

Character of Capital Expenditures

The capital expenditures of the M.-K.-T. in the past eight years have been of a character to carry on to completion the rehabilitation and modernization of the property, which program was described in detail in the *Railway Age* of June 10, 1921, and June 17 of the same year. A new freight terminal was built at Denison,

Tex., and shop facilities at Waco were modernized and greatly extended. Water treating plants were installed, curvature reduced, bridges renewed and automatic signals extended. Grades have been reduced, many wooden trestles have been replaced by structures more economically maintained and locomotive terminal improvements are being continued. Improved facilities—stations, grain elevators, etc.—were provided for shippers. There have not been any important additions of locomotives for several years, most of the recent capital expenditures for equipment having been in the improvement of existing locomotives.

Additions and betterments from 1922 to 1928, inclusive, were as follows:

	Road	Equipment
1922	\$5,305,844	\$190,993*
1923	3,972,770	8,558,872
1924	2,390,213	647,098
1925	2,518,609	2,977,769
1926	3,281,003	803,511
1927	2,500,682	718,110
1928	2,327,729	251,695*
	<hr/>	<hr/>
	\$22,296,850	\$13,264,672

* Credit.

The total expenditures for additions and betterments in the seven-year period were divided 37.3 per cent for equipment and 62.7 per cent for roadway and structures. The mileage of single track automatically signaled increased from 154 in 1920 to 446 in 1928, or 190 per cent.

In 1928 the company had a balance after interest and other charges of \$7,496,263, as compared with \$5,994,810 in 1927. This increase is accounted for, not only by the improved earnings, but also—and largely—by a reduction in fixed charges due to the conversion of 5 per cent adjustment mortgage bonds into Class A preferred stock, which was placed on a 7 per cent dividend basis during the year.

Prospects of the company for 1929 appear favorable with car loadings running above last year, crop prospects good and increasing investment in new industries in the territory.

* * * *



The Baltimore & Ohio's "National Limited" Leaving Baltimore, Md.

Other Roads Protest Missouri Pacific Container Plan

Arguments of southwestern carriers against proposed tariff conclude hearing at Dallas

THE plan of the Missouri Pacific Lines to provide container service for the handling of package freight between certain principal points in its territory, on a rate basis involving substantial reductions under ordinary l. c. l. freight rates, was subjected to the concerted attack of the other southwestern railways during the latter half of the Interstate Commerce Commission hearing on the proposed tariff, held at Dallas, Tex., from March 18 to March 23. Briefly, the attitude of the other roads was that the container plan of operation, under the proposed tariff, would reduce substantially the revenues of the railways without commensurate reductions in operating costs or increased business.

The testimony of the railroads protesting the tariff followed that of the witnesses for the Missouri Pacific and for various shipper and civic organizations in the southwest, a report of which was presented in the *Railway Age* of March 23.

Testifying against the proposed tariff, G. T. Atkins, vice-president in charge of traffic of the Missouri-Kansas-Texas, declared that his company not only opposed the tariff itself but viewed the possibility of its adoption with considerable alarm. He said that the southwest territory is not ready at this time for container operation and that the proposed rate was too low for application in the southwest. He said further that it had not been decided whether the Missouri-Kansas-Texas would inaugurate container service if it were established by the Missouri Pacific. He held that the proposed container plan is not more economical than the package car and that the service could not be made successful without the intervention of a forwarding company.

Would Destroy Established Rate Schedules

The principal witness for the railroads protesting the Missouri Pacific tariff was R. C. Fyfe, chairman of the Western Classification Committee and the Consolidated Classification Committee. He said that the plan, if put into effect, would be destructive of carefully worked out rate schedules. He presented exhibits covering an extensive list of articles which would be subject to the new container rates to show that the carriers would lose considerable revenue in nearly every case if the proposed tariff were put in effect. On a number of the items which would be carried at reduced rates under the container plan of operation, Mr. Fyfe contended that higher rather than lower rates were justified.

Following the testimony of Mr. Fyfe, representatives of a number of southwestern lines took the stand. In general, their opposition to the container plan proposed by the Missouri Pacific was that it would result in reduced revenue to the southwestern carriers, with little, if any benefit to shippers. S. G. Reed, assistant traffic manager of the Southern Pacific, testified that the container shipping method would not stop the loss of local

freight traffic to the motor truck, or otherwise help the railroad or shippers. One of the reasons advanced by the Missouri Pacific in favor of the container plan of operation was that it would enable the recovery of traffic which has been lost to the highways. Mr. Reed said that the Southern Pacific had made a careful investigation of the container operations of the eastern lines, and that it had concluded that the plan would not be successful in the west. The business of the country has grown up under an established schedule of properly adjusted carload and less carload rates, said Mr. Reed, which the proposed container tariff would disrupt. He thought that few individual shippers would avail themselves of the container service and that the forwarding companies would reap the benefit of its provision.

H. E. McGee, vice-president and general manager of the Missouri-Kansas-Texas, opposed the Missouri Pacific proposal because of the reduced rates involved. He contended that the cost per ton of handling freight by the container method would increase. Mr. McGee offered exhibits showing that the population and traffic density in the east, where container service is now in operation, are much greater than in the southwest, where the Missouri Pacific proposes to establish its container service. J. F. Garvin, freight traffic manager of the Katy at Dallas declared that the container service as proposed would discriminate against the small shipper and the small locality. He also said that the proposed container tariff would compel a reduction in carload rates.

B. H. Stanage, traffic manager of the St. Louis-San Francisco, testified that he had studied the operation of container cars in the east, and that he opposed their operation in the southwest. The package car service now in effect in the southwest territory had been so much improved in recent years that it now furnishes ample facilities for shippers, according to Mr. Stanage.

Cotton Belt Favors Smaller Container

R. P. Harrington, assistant freight traffic manager of the St. Louis Southwestern, advanced three reasons for opposition to the Missouri Pacific tariff and its plan of container operation: That it was not adaptable for use in the southwest; that if container service was to be furnished in the southwest, it should be built around a container different from that proposed by the Missouri Pacific; and that the Missouri Pacific plan, instead of being an exclusive railroad service, would involve the intervention of an outside agency. The forwarding company would reap the benefit of container operation as proposed by the Missouri Pacific, according to Mr. Harrington, who added that he thought the southwestern territory required a smaller container, weighing not over 400 lb. with a maximum capacity of 3,000 lb.

H. R. Lake, superintendent of transportation of the Atchison, Topeka & Santa Fe, testified in opposition to

the proposed tariff on the ground that the container car system of handling freight would result in increased operating costs. Mr. Lake offered a number of exhibits in substantiation of this argument. H. W. Press, assistant to the controller of the St. Louis-San Francisco, also testified that the container method would result in losses of revenue to the carriers. He presented an analysis which showed that the net loss in revenue on 312 cars of freight, shipped in containers, would be \$179,806, or 26.5 per cent.

Prior to the beginning of the testimony of the railroad representatives against the proposed container plan of operation, several representatives of shippers' organizations, in addition to those mentioned in the report contained in the *Railway Age* of March 23, took the stand in opposition to the proposal. In response to questions of Examiner Ames, one of these witnesses testified that his objection to the container proposal was in part based upon his belief that, under it, the railways would accept a reduction in revenue from which only the forwarding companies would benefit. Asked if he would have the same objection if a method were devised for the operation of containers by an agency belonging to the railways, such as the Railway Express Agency, this witness replied in the affirmative, adding that he did not want to see the rates reduced, but preferred that the carriers' income should be sufficient to enable them to keep the efficiency of their service at a high level. This witness admitted that the institution of container service on the basis of the present l. c. l. rates would remove an important part of his objection to the container plan, provided the same service were offered to all localities.

Most of the shippers testifying against the Missouri Pacific tariff stated that they were opposed to it because it would aid jobbers in the middle west and the east and would take business away from jobbers in the southwest. One of them also expressed the belief that the Universal Carloading & Distributing Company would be given the best container service and that other shippers would have less consideration.

Testifies to Rate-Cutting

Examiner Ames continued his interrogation of shipper witnesses as to their relations with the Universal Carloading & Distributing Company. During the questioning of one witness, John W. Daniels, traffic manager of the Peden Iron & Steel Company, Houston, Tex., it was stated that this company had been granted rates by the Universal Company which were lower than the rates fixed in the latter's tariff. Mr. Daniels read into the record letters he said had been received from local officers in charge of the Universal Company's operations, which announced that the Peden Iron & Steel Company would be granted reductions of 10 cents a cwt. on first-class shipments, 5 cents a cwt. on second-class shipments and 3 cents a cwt. on third-class shipments. Mr. Daniels testified that, so far as he knew, this is the only company that is being given such reduced rates. He said that he had made an investigation of certain shipments coming to his company as consignee through the Universal Carloading & Distributing Company, which indicated that the originators of these shipments were paying to the Universal Company transportation charges on the basis of the rates published in the forwarding company's tariff.

The hearing at Dallas was adjourned on March 23, to be resumed at Kansas City, Mo., on March 28. The taking of testimony of shippers for and against the proposed Missouri Pacific tariff was to be the principal subject of the Kansas City hearing.

Census of Repair Shops

THE Department of Commerce announces that, according to data collected at the biennial census of manufactures taken in 1928, the repair shops of steam and electric railroad companies reported work done and products manufactured during the year 1927 to the aggregate value of \$1,289,695,158, a decrease of 3.2 per cent as compared with \$1,332,679,079 reported for 1925, the last preceding census year. For steam railroad repair shops the total was \$1,205,190,710, a decrease of 3.5 per cent as compared with \$1,248,866,859 for 1925, and for electric \$84,504,448, an increase of 0.8 per cent as compared with \$83,812,220 for 1925. The total value of work done and products manufactured in 1927 is made up as follows: Steam railroad shops—Motive-power and machinery departments, \$603,869,975; car departments, \$522,599,245; bridge and building departments, \$4,927,501; other work, not reported in detail, \$73,793,989. Electric railroad repair shops—Motive-power and machinery departments, \$6,560,241; car departments, \$74,707,206; bridge and building departments, \$296,057; other work, not reported in detail, \$2,940,944.

The establishments in these industries are repair shops maintained by steam and electric railroad companies for the purpose of making repairs on rolling stock and bridges. They do not include steam-railroad roundhouses where incidental repairs are made but no machine-shop work is performed. Locomotives and cars, particularly the latter, are built to some extent in railroad repair shops, but the bulk of the work done in such shops consists in repairing and rebuilding.

Of the 2,309 repair shops reporting for 1927, 222 were located in Pennsylvania, 180 in Ohio, 177 in Illinois, 176 in New York, 116 in Texas, 110 in Indiana, 85 in California, 78 in Iowa, 69 in Minnesota, 67 in New Jersey, 66 in Michigan, 66 in Missouri, 64 in Wisconsin, 52 in Virginia, 50 in West Virginia, 47 in Washington, 42 in Massachusetts, 41 in Kansas, 38 in Georgia, 33 in Colorado, 33 in Kentucky, 32 in Louisiana, 30 in Montana, 28 in Alabama, 28 in Nebraska, 27 in Tennessee, 26 in Connecticut, 25 in Oklahoma, and the remaining 301 in 20 other States and the District of Columbia. In 1925 the industry was represented by 2,363 shops, the decrease to 2,309 being the net result of losses and gains. Of the shops lost, some were idle throughout the year and some were discontinued prior to 1927. The shops gained reported for the first time at the present census.

The statistics for 1927 and 1925 are presented in the following table. The figures for 1927 are subject to correction.

	1927	1925	Per cent of increase (+) or decrease (-)
Number of shops.....	2,309	2,363	— 2.3
Wage earners (average for the year)	428,291	457,755	— 6.4
Wages	\$648,908,452	\$668,191,768	— 2.9
Cost of materials, shop sup- plies, fuel, and purchased power, total	\$545,491,754	\$563,645,944	— 3.2
Materials and supplies... ..	\$516,458,656	.....	.....
Fuel and power.....	\$29,033,098	.....	.....
Total value of work done and of manufactured products... ..	\$1,289,695,158	\$1,332,679,079	— 3.2
Value added by manufacture... ..	\$744,203,404	\$769,033,135	— 3.2
Horsepower	1,110,821	1,005,318	+10.5

Salaried employees are not included in "wage earners." As railroad repair shops are not operated primarily for profit, the value of work done and products manufactured during the year represents chiefly the cost of materials, fuel, and power, plus the salaries and wages paid to shop employees.

Communications and Books

English and American Ideas on Automatic Train Control

CAMBRIDGE, MASS.

TO THE EDITOR:

Your account of the action of the British Ministry of Transport in calling for the general adoption of automatic train control in England, which appears on page 630 of the issue of March 16, is a highly interesting piece of intelligence. If the necessity for this costly safeguard is felt on the British railroads, with their many years' record of carrying passengers more safely than they are carried in any other country in the world, the fact has an obvious bearing on the problem of passenger-train safety in America. One significant clause, however, in Sir John Pringle's conclusion is omitted from your very condensed account of his report; namely, his prefatory declaration that automatic train control is the *only* method which can prevent the occurrence of accidents due to failures of enginemen to observe and obey signals.

Can it be that Colonel Pringle still lives in the atmosphere of 1921? This experienced British railway expert must know that on the Great Western Railway a cab signal without the automatic stop has made an excellent record for many years—I think a perfect record so far as concerns the protection of passenger trains from rear collisions—and must know that if it is possible to provide a generally applicable system and get along without the automatic setting of brakes, one very definite risk is avoided.

Colonel Pringle is to be classed as in the front rank of English signaling experts; but A. H. Rudd of the Pennsylvania, who is in the front rank in this field, in America, is spending three millions of dollars, on about the busiest 200 miles of railroad in this country in the installation of cab signals. In doing this, Mr. Rudd gives clear evidence that he does not consider automatic train control to be the only means of curing enginemen's absent-mindedness.

Mr. Rudd evidently has learned some things since 1921. It is true that the primary virtues of the audible signal in the locomotive cab have been patent to all observant students of signaling for the past 40 years; but since cab signals have been put in actual use on hundreds of miles of American railroads (mostly by governmental compulsion) as a mere incidental feature of the automatic stop, their virtues are coming to be appreciated by many persons who formerly were blind to them; so blind as actually to appear ignorant.

And, English railroad men surely ought to appreciate the difference between the cab signal and the automatic stop, for the latter is of no value without power brakes; and power brakes are yet to be introduced on most of England's freight cars. It will be of interest to see what the anticipated British report on automatic train control has to say about the thousands of British freight wagons which have nothing but hand brakes.

C. J. W.

New Books

Industrial Traffic Management, by Leslie Aulls Bryan, assistant professor of transportation, Syracuse University. Bound in cloth 392 pages, 8½ in. by 5½ in. Published by A. W. Shaw Company, Chicago, price \$4.00.

This book gives a detailed explanation of the managing of industrial traffic. It presents a panoramic picture of the steps involved in sending a package parcel post or in routing a car-load across the continent. It embraces essentials from organizing an effective traffic department of 1 or 100 persons, marking shipments according to regulations provided, and handling loss and damage claims to presenting petitions for rate or service adjustments before state and federal commerce commissions.

There are 21 chapters, which are divided into three parts—General Considerations, Details of Organization and of Ad-

ministration, and Legal Considerations. The chapters include, Duties of the Industrial Traffic Manager, Rate Making Principles, Shipping Room Organization and Administration, Expediting and Tracing Shipments, Traffic Shipping Papers, Claims and the Routing of Shipments.

The Railway Policy of South Africa, by S. Herbert Frankel, 367 pages, 9 in. by 5½ in. bound in cloth. Published by Hortors, Limited, Johannesburg, South Africa. Price 16 shillings, 6 pence.

The sub-title "An Analysis of the Effects of Railway Rates, Finance and Management on the Economic Development of the Union" outlines the scope of this book in which the author presents a critical appraisal of the work of the South African Railways and Harbors Administration in its management of the State railways. The discussion opens with an interpretation of those sections of the South Africa Act, 1909, by which the unification of railways under governmental control was effected. The author finds in this connection that the act contemplated a united railway system under one efficient administration and "managed independently in the interests of the whole country, unhampered by party, provincial, sectional or district interests." Here he postulates that "It is by its success or failure to carry out the basic intentions of the Constitution that the policy, actions and achievements of the South African Railways and Harbors Administration must be judged."

Continuing on the foregoing basis attention is next directed to that section of the Act which holds that commercial principles should guide in the building of branch lines and here the Administration is charged with a ready acquiescence in political manoeuvres for uneconomic extensions. The criticism then turns successively to the manner in which the capital investment was determined, the handling of the depreciation and renewals fund, uneconomic labor policies, the granting of free or partly gratuitous services, the rate policy and its effect on industries, all of which are estimated, by the author, to place an annual direct burden on railway users of £2,200,000 (\$10,714,000) in excess of what they would pay in rates under efficient management and sound economic development. By relieving the railways of these burdens, he finds, a reduction of 22 per cent in charges could be effected on the "high rated" traffic, or a reduction of 13 per cent on all traffic.

With this indictment of the administration drawn, the author proceeds, in an appendix, to outline his own suggestions for the future management of South African railways. His plan, in general, is based on that which was adopted in the formation of the Canadian National and the machinery which the Dawes Plan set up for the management of German Railways.

A convenient feature of the book is the "Synopsis of Conclusions" which extends over the first 51 pages of the text. Here is briefly chronicled the scope of the discussion in each chapter and the conclusions drawn from such discussion.

Memoirs and Addresses of Two Decades, by Dr. J. A. L. Waddell, consulting engineer, edited by Frank W. Skinner, consulting engineer. 1174 pages, illustrated 6 in. by 9 in., bound in cloth. Published by the Mack Printing Company, Easton, Pa. Price \$5.

Few engineers of note have delivered more addresses and papers on as wide a variety of subjects than has Dr. J. A. L. Waddell, the eminent bridge engineer, and the assembling and topical presentation of a great many of his writings in a single volume has been effective in producing a unique contribution to engineering literature. The book is of value primarily to bridge engineers, because the author has drawn largely on his own professional experience in the selection of subjects covering a wide range of matters relating to the design and construction of bridges and the economic aspects of bridge engineering. However, there is also much of value and interest to all engineers, and especially to the young man about to enter his life's work. The book holds a particular fascination

because of the author's gift for injecting his own personality into his writing. Three chapters—on railway building and bridge work, on rail inclination and on rail creeping, deal specifically with railway problems, but even to the railway engineer, the book will prove its greatest worth in those sections devoted to more general subjects, for example, ethics of engineering, technical education, engineering literature, economics and contracts.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

And Then Came Ford, by Charles Merz. This is an interpretation of a period, the period 1900-1929, rather than biography in the usual or even the "modern" sense. It records vividly the numerous changes taking place during that time. 321 p. Pub. by Doubleday, Doran & Co., Garden City, New York, \$3.00.

Merchandising Fruits and Vegetables, by Wells A. Sherman. Especially "Artificial ice brings revolution" p. 26-44; "Evolution of transportation service" p. 293-311, and "Evolution of national distribution" p. 312-377. 499 p. Pub. by A. W. Shaw & Co., New York and Chicago, \$4.00.

Organization of Railways. Some Material Published from 1920-1929. A list of references to books, periodical articles, and reports, which reflect for one thing the striking changes taking place in a relatively short time. 26 p. Pub. by Library, Bureau of Railway Economics, Washington, D. C., *Apply*.

Trails, Rails and War—The Life of General G. M. Dodge, by J. R. Perkins. Of particular railroad interest are Chapter I "A Railroad Builder's Background", Chapters 2-13 inclusive on the inception and construction of the Union Pacific, Chapter 14 "The Race of the Rival Roads", Chapter 15 "Dodge and the Southwestern System", Chapter 16 "Investigating the First Transcontinental Road" and Chapter 17 "Lincoln's Lost Railroad Order." Illustrated. 371 p. Pub. by Bobbs-Merrill Co., Indianapolis, Ind., \$5.00.

Periodical Articles

All Aboard by Air—The Present State of Transcontinental Passenger Service and the Latest Safety Provisions for Sky Travel, by Myron M. Stearns. What routes and accommodations are available and at what prices. Illustrated. *World's Work*, April 1929, p. 34-41, 144-150.

Backgrounds of Mr. Hoover's Farm Stabilization—A Hypothetical Analysis, by Bernhard Ostrolenk. "All in all, under the most favorable conditions, it is not to be expected that the benefits, if any, from inland waterway transportation will come to American agriculture within one or two decades." p. 547. *Annalist*, March 22, 1929, p. 547-548.

Displacement of Railroad Labor, by Ethelbert Stewart. "... from the tendencies indicated... it seems that the worst that can be apprehended regarding railway employment is that it will either not decrease at all or will decrease very slowly, as regards both total employees and as regards practically all the individual occupations. This being so, it seems to me that the real problem is not so much the making of provisions for displaced workers as it is of not taking on new employees unless they are absolutely needed." p. 49. The author is U. S. Commissioner of Labor Statistics, *Monthly Labor Review*, March 1929, p. 49-52.

The St. Louis-San Francisco Railway and Its Motive-Power Part II, by Paul T. Warner. Discusses locomotive operation primarily. Part I was noted in the Booklist for December 29, 1928. Illustrated. *Baldwin Locomotives*, April 1929, p. 20-34.

What Price Railroad Speed, by A. W. Somerville. "Speed records" p. 74. "One thing is certain, the traveling public wishes to move faster; also more frequently... And whether the passenger motive power of the future is steam, gas, or electricity, small or large unit, it will get over the ground faster than present-day standards permit." p. 77. *World's Work*, April 1929, p. 72-77.

Looking Backward

Fifty Years Ago

It was stated at a meeting of the newly formed Western Transportation Association at St. Louis on March 20 that the eastern roads would not join in the agreement to limit the issuance of passes and it was then decided to exclude from the arrangement all the territory east of those lines operating in Illinois and Indiana.—*Railroad Gazette*, March 28, 1879.

A train was run over the Pennsylvania between Philadelphia and New York on March 21, heated by the recently-perfected apparatus which the company has successfully tested on trains running from Altoona over the mountains during the past winter. The new method is by means of heated water passing through pipes with a central heating plant, burning hard coal, located in the baggage car.—*Railroad Gazette*, March 28, 1879.

The Southern Pacific of Arizona is still progressing eastward. On March 15 the east end of track was 106 miles from Yuma, Ariz. On April 1 it is planned to reach Gila Bend, 120 miles from Yuma, and on May 1, Maricopa Wells, 156 miles from Yuma. When the latter point is reached, which will be the terminus for the present, the general passenger agent expects to organize a grand excursion trip, for which tickets will be sold from San Francisco to Maricopa and return, a round journey of 1,752 miles, for \$40, including a berth in sleeping car.—*Railway Age*, March 27, 1879.

Twenty-Five Years Ago

On March 24 the Choctaw, Oklahoma & Gulf, including about 1,200 miles of lines, was transferred to the Chicago, Rock Island & Pacific under a 999-year lease.—*Railway Age*, April 1, 1904.

C. O. Jenks, assistant superintendent of the Great Northern at Superior, Wis., has been appointed superintendent of the Montana division of that road, with headquarters at Havre, Mont. John F. Stevens, heretofore fourth vice-president of the Chicago, Rock Island & Pacific, has been elected second vice-president of that railroad. E. E. Calvin, assistant general manager of the Oregon Short Line, has been appointed general manager of the Oregon Railroad & Navigation Company [now the Oregon-Washington Railroad & Navigation Company], with headquarters at Portland, Ore. C. H. Markham, vice-president of the Houston & Texas-Central and the Galveston, Harrisburg & San Antonio and president of the Houston, East & West Texas [now parts of the Texas and Louisiana lines of the Southern Pacific], has been appointed general manager of the Southern Pacific, with headquarters at San Francisco, Cal.—*Railway Age*, April 1, 1904.

Ten Years Ago

Return of the railroads to their private owners about July 1, 1920, will be proposed in a bill now being prepared by Representative John J. Esch of Wisconsin, the new chairman of the House committee on interstate and foreign commerce.—*Railway Review*, March 29, 1919.

The automatic train control committee appointed by the Railroad Administration has just finished an inspection of automatic train control equipment on the pioneer installation in the United States—on the Chicago & Eastern Illinois between Chicago and Danville, 106 miles.—*Chicago Railway Review*, March 29, 1919.

General John J. Pershing on February 20 sent a letter to Brig. Gen. W. W. Atterbury, director general of transportation of the A. E. F., who is still in France, congratulating him on the success of the service of the Transportation Corps. General Pershing said in part: "Each member of the Transportation Corps, whether stationed at a base port or at an advanced railhead, has contributed to the victory of our armies, and I want each man to understand my full appreciation of this."—*Railway Age*, March 28, 1919.

Odds and Ends of Railroading

Insomnia

I've no desires in politics,
A peaceful soul I'd be;
My aim is not to pilot planes
Across the mighty sea.

I ask not for an army's strength
Imported cars or fame;
I've no ambition for the stage
To glorify my name

I'd only like the precious gift
Of an inventive brain
To deal with folks who always snore
Aboard the Pullman train.

—New York Sun

A Cure for Insomnia

But, I've desires in politics—
An ambitious soul I'd be;
I'd aim to run the railroads
And all the I. C. C.

I'd ask more than an army's strength,
A niche in the Hall of fame;
The floors of Congress would be my stage
To glorify my name

I'd never need the precious gift
Of an inventive brain
To pass a law forbidding snores
Aboard the Pullman train.

—M. B. R.

Two "Aces"

This is hardly the time to speak of golf for most of us, but since it happened in California, perhaps it is admissible, even in winter. L. H. Trimble, general agent, perishable freight department, Southern Pacific, scored two "holes in one" in less than three weeks, the first in Los Angeles, the second in San Francisco.

A Modern Barbara Fritchie

An incident which demonstrates the spirit of co-operation among the families of railroad workers occurred recently when Mrs. G. W. Mitchell, wife of a track foreman of the Pennsylvania at Losh's Run, Pa., went out in the absence of her husband and flagged an eastbound freight train. As the train was passing Iroquois Tower, the operator discovered a brake rigging down and dragging. He immediately called Mr. Mitchell's home at Losh's Run and inquired if there were any track men in the vicinity to flag the train. Mrs. Mitchell, finding none of the track men in the neighborhood, took it upon herself to act in the emergency by going out on the track and flagging the train.

A Real Tug-of-War

A technical review of the work of the British Navy in China by Captain L. D. Mackinnon, at the Royal United Service Institution, was enlivened by some anecdotes of recent amusing events in China. One about a battle between two armored trains seems almost too good to be true, even of Chinese warfare. The rival armies each had an armored train on the Nanking Railway. One day, in a thick fog, these two trains met end-on. They were traveling slowly. Both were fitted with automatic couplings, and the result was that they simply locked together. The locomotives were reversed, and amidst a confusion of noise and shooting, the combat resolved itself into a tug-of-war. Eventually the Northern train won, and hauled its rival away as a prize. "There were no

casualties," Captain Mackinnon added.—The Birmingham (England) Post.

Time to Change

The article in your issue of February 23 in connection with the 74 year old wheel lathe, recalls a conversation overhead a good many years ago. After the Rock Island had constructed a substantial mileage west of the river, W. I. Allen was appointed general superintendent of the newly constructed lines. Mr. Allen wanted to install the "31" order in dispatching trains. The general superintendent of the lines east said "Why, Mr. Allen, we have been operating the Rock Island (naming the practice which I can not now recall) for 30 years." Without a moment's hesitation Mr. Allen said "That in itself should condemn it, Mr. Royce." I was so impressed with what must have been at the back of Mr. Allen's mind, that I have never forgotten it.

Yours very truly,
H. S. JONES, Valuation Engineer,
Gulf, Mobile & Northern.

A Gay Old Bird

A pheasant, evidently in a hurry to get somewhere, recently tried to fly through a rail motor car on the Pennsylvania near Flemington, N. J., without bothering to open the windows. According to the conductor, the bird flew down with such force that the impact sent glass flying in all directions. What few pieces of the window that were left was lifted out and replaced by a new pane at the next station. The glass in the window was three-sixteenths of an inch thick. The pheasant, evidently unharmed, flew away after the damage was done.

An Unusual Honor

On February 10, upon the occasion of the 24th anniversary of the Rotary Club of Chicago, that club presented an oil portrait of himself to Alex C. Johnson, vice-president in charge of traffic of the Chicago & North Western. Mr. Johnson is past president (1924-25) of the Rotary Club of



Mr. Johnson and His Portrait

Chicago, which is the oldest Rotary Club in existence. The portrait is the work of John Doctoroff, who painted the official portraits of Herbert Hoover, Calvin Coolidge and their vice-presidents. It will eventually be installed in the lobby of the new hotel in Rapid City, S. D., which has been named the Alex Johnson Hotel, in honor of Mr. Johnson.



The Southern Pacific's "Sunset Limited" near Redlands, Cal.

THE READING COMPANY has made increases, ranging from \$4 to \$4.50 a month, in the pay of large numbers of clerks.

J. P. QUIGLEY, superintendent of transportation and telegraph of the Western Pacific, has been chosen president of the Pacific Railway Club (San Francisco).

THE MASTER CAR BUILDERS' AND SUPERVISORS' ASSOCIATION will hold its next annual convention on September 4, 5 and 6 at the Hotel Sherman, Chicago.

THE RAILWAY TREASURY OFFICERS' ASSOCIATION will hold its next annual meeting at the Royal York Hotel, Toronto, Ont., on September 18-20.

SHOP EMPLOYEES OF THE SOUTHERN are taking a strike vote, returnable on March 31 to reinforce a demand for an increase in wages. The Southern has sought to have the case mediated by a representative of the Board of Mediation.

THE READING COMPANY has increased the pay of about 1300 station employees making an aggregate increase in the annual payrolls of \$75,000. The increase, taking effect as of March 16, is, for most of the men affected, two cents an hour. Telegraphers are henceforth to have a six-day working week. These employees and apparently some station agents not telegraphers, have had their pay increased three cents or four cents an hour.

ABOUT 800 CLERICAL EMPLOYEES of the Kansas City Southern who are now receiving \$4 or more per day have been granted an increase of three cents an hour. This will require an additional yearly payroll expenditure of \$60,000.

THE CAR FOREMAN'S ASSOCIATION OF CHICAGO will hold its next meeting at Great Northern Hotel, Chicago, on April 8, with a paper by M. E. Fitzgerald (C. & E. I.) on loading rules. The address will be accompanied by stereopticon views.

THE OFFICE OF G. E. ELLIS, secretary of the Committee on Automatic Train Control of the American Railway Association, which has been at 431 South Dearborn street, Chicago, will on April 1 be moved to the Transportation building, Washington, D. C.

THE MISSOURI PACIFIC has concluded negotiations with its mechanical department employees through which, beginning April 1, their wages will be increased by amounts varying from three to five cents an hour. Approximately 7800 men are affected by the award, and it is expected that it will involve a yearly addition to the payrolls of about \$750,000.

Floods Continue to Interrupt Trains in West and South

Train service over the line of the Chicago, Burlington & Quincy between Quincy, Ill., and Keokuk, Iowa, 40 miles, was temporarily abandoned on March 19 when backwater from the Mississippi river and its tributaries overflowed the tracks. On March 26 it was expected that it would be impossible to resume traffic for several days following the recording of a river stage of 19.6, which was the highest since 1916.

On March 23 high water in Sykes creek near Elliott, Miss., washed out a bridge and a section of track on the main line of the Illinois Central. Trains were detoured over the Yazoo & Mississippi Valley between Durant, Miss., and Grenada.

The line of the Louisville and Nashville between Montgomery, Ala., and New Orleans, La., was restored, on March 23, sufficiently to admit of the resumption of through trains. This road restored service between Flomaton, Ala., and Pensacola, Fla., on the 23rd.

Consolidation Legislation

Senator Fess, of Ohio, after a call on President Hoover on March 20, said that he would introduce his railroad consolidation bill, which was favorably reported by the Senate near the close of the last session of Congress, at the forthcoming special session of Congress called for April 15, if it should be found possible to do so. The leaders, however, are attempting to confine the session to agricultural relief and tariff legislation. In the House it is not proposed to organize the committees at the special session other than those that will be concerned with the farm and tariff legislation, but the Senate committees continue from session to session.

Some efforts have been made to ascer-

tain President Hoover's present attitude toward consolidation legislation. He has long been an advocate in a general way of legislation to promote a consolidation policy, which has been urged by his predecessors for two administrations, but it is understood that he does not expect that the problem will again arise until the long regular session that begins next December.

Program for Tie Producers' Convention

The National Association of Railroad Tie Producers will hold its eleventh annual convention at the Arlington Hotel, Hot Springs, Ark., on April 23-25. The program is as follows:

Tuesday, April 23, 2 p.m.
Convention called to order by J. J. Schlafly (president, Potosi Tie & Lumber Co., St. Louis, Mo.), acting president.

Opening Business
Report of Secretary-Treasurer, R. M. Edmonds, St. Louis, Mo.

Address—Problems of the Field Man, Mayo Robertson, Western Tie & Timber Co., St. Louis, Mo.

Address—Mergers and Their Effect on the Tie Business, Elmer T. Howson, Western Editor, *Railway Age*, Chicago.

Report of Committee on Statistical Information, E. E. Pershall, president, T. J. Moss Tie Company, St. Louis, Chairman.

Report of Committee on Specifications for Industrial Track Ties, J. C. Fritschle, St. Louis, Mo.

Wednesday, April 24, 9:30 a.m.
Address—The Crosstie Requirements of the Electric Railways, Howard H. George, superintendent of research, Cleveland Railway Co., Cleveland, Ohio.

Address—Work of the Tie Committee, W. J. Burton, chairman, Committee on Ties, A.R.E.A. and Assistant to chief engineer, M. P. St. Louis, Mo.

Address—Producers Failures from the Viewpoint of the Consumers, F. C. Krell, forester, Penna., Philadelphia, Pa.

Address—The Advantages of Uniform Tie Purchases, R. S. Belcher, manager treating plants, A. T. & S. F., Topeka, Kan.
6:30 p.m.
Annual dinner

Thursday, April 25, 9:30 a.m.
Address—Selective Logging in Tie Operations, R. D. Carver, forester, U. S. Forest Service, Madison, Wis.

Reports of Special Committees
Reports on general conditions in the tie industry by district officers.

Closing business.

International Railway Fuel Association

The International Railway Fuel Association will hold its twenty-first annual convention at Chicago on May 7 to 10 inclusive. The program follows:

Tuesday Morning, May 7—Opening Session
Meeting to convene at 11 a.m.
Invocation.
President's address.

Address by Sir Henry W. Thornton, president, Canadian National.
Address by R. H. Ashton, president, American Railway Association.
Address by H. L. Gandy, president, National Coal Association.

Tuesday Afternoon—Technical Session
Call to order 2:30 p.m.
Address by A. P. Prendergast, mechanical superintendent, Texas & Pacific.
Paper by L. K. Silcox, assistant to president, New York Air Brake Company.
Report of Committee on Steam Turbine Locomotives.
Report of Committee on Diesel Locomotives.
Wednesday Morning, May 8—Operating Session
Call to order 9:30 a.m.
Address by Elisha Lee, vice-president, Pennsylvania.
Report of Committee on Front Ends, Grates and Ash Pans.
Report of Committee on Oil Firing Practice.

Wednesday Afternoon
Call to order 2 p.m.
Report of Committee on Coal Firing Practice.
Thursday Morning, May 9—Fuel Handling Session
Call to order 9:30 a.m.
Address by J. B. Hill, president, Nashville, Chattanooga & St. Louis.

Bituminous Coal Conference, report by W. L. Robinson, representative for International Railway Fuel Association.
World Power Conference, report by H. W. Brooks, representative for International Railway Fuel Association.
Report of Committee on Co-operation with Railway Accounting Officers' Association.
Report of Committee on Fuel Distribution and Statistics.

Thursday Afternoon
Call to order 2 p.m.
Report of Committee on Fuel Bulletins.
Report of Committee on Fuel Stations.
Report of Committee on Inspection and Preparation of Coal.
Friday Morning, May 10—Mechanical Session
Call to order 9:30 a.m.
Report of Committee on Coal Fired Power Plants.
Report of Committee on Oil Fired Power Plants.
Report of Committee on New Locomotive Economy Devices.

Business Session
Report of Committee on Constitution and By-Laws.
Election of officers.
Report of secretary-treasurer.
Report of Auditing Committee.

Wage Statistics for 1928

The Interstate Commerce Commission has issued a compilation of railway wage statistics for 1928 which is a consolidation of the twelve monthly summaries issued during the year, with certain minor corrections. For the year the number of employees, which is the average of the twelve monthly counts, was 1,680,187, a decrease of 80,812 or 4.59 per cent compared with the returns for the year 1927. The total compensation was \$2,862,099,609 a decrease of 3.09 per cent. The average straight-time hourly earnings for all employees reported on the hourly basis increased from 59.8 to 61.3 cents, and the average straight-time daily earnings of all employees reported on the daily basis increased from \$8.15 to \$8.29. The overtime paid for amounted to 14,890,397 hours, as compared with 18,922,449 in 1927.

The average number of employees by groups for the years 1924 to 1928 was as follows:

Group	Basis of reporting	1928	1927	1926	1925	1924
Executives, officials, and staff assistants Professional, clerical, and general....	Daily	16,890	17,006	16,848	16,510	16,283
	Hourly	53,171	53,473	52,976	51,624	50,580
Maintenance of way and structures...	Daily	218,217	227,500	232,363	230,521	231,751
Maintenance of equipment and stores...	Daily	5,051	5,081	4,907	4,751	4,744
Transportation (other than train, engine, and yard).....	Daily	395,147	416,454	413,261	385,743	384,325
Transportation (yardmasters, switch tenders, and hostlers).....	Daily	15,923	16,496	17,001	17,026	17,212
Transportation (train and engine)...	Hourly	445,362	474,234	502,851	507,486	517,769
Total	Daily	25,269	25,961	26,379	26,740	27,058
	Hourly	172,198	179,065	183,089	181,806	181,561
	Daily	6,770	7,020	7,159	6,878	6,809
	Hourly	15,372	16,389	17,077	17,236	17,920
	Daily	310,817	322,320	331,869	322,778	321,379
	Hourly	123,074	125,037	125,270	123,529	122,686
	Hourly	1,557,113	1,635,962	1,680,510	1,645,570	1,654,705

Activities of Canadian Commission

During 1928, the Board of Railway Commissioners of Canada received 3,396 applications including formal complaints, according to its annual report tabled in the House of Commons at Ottawa. No cases were carried in appeal either to the Supreme Court or the Governor-in-Counsel. Sittings of the board totalled 48, of which 23 were in Ontario. Orders issued numbered 1,890.

The following tabulation gives the numbers killed and injured in accidents on Canadian railroads during 1928 with a comparison for 1927:

	1928	1927
Total accidents	3,013	2,862
Total killed	445	353
Total injured	3,193	3,091
Passengers killed	18	13
Passengers injured	301	382
Employees killed	109	101
Employees injured	2,170	2,051

Trespassers killed or injured by trains according to provinces were as follows:

Nova Scotia	4	2
New Brunswick	2	4
Quebec	19	19
Ontario	50	47
Manitoba	16	11
Saskatchewan	15	14
Alberta	12	26
British Columbia	9	16

In the last five years there have been 1,476 crossing accidents in which 571 persons were killed and 1,946 injured. There were 298 accidents in which automobiles were involved, 35 horse and rigs, and 22 pedestrians.

In 1928, 371 accidents were reported to the board in which 173 persons were killed and 475 were injured. This compares with 317 accidents reported in 1927 with 99 killed and 425 injured.

Engineer Railway Battalions—Officers' Reserve Corps

New instructions relative to the appointments of officers in the Engineer Railway Battalions, Reserve, were issued by the Adjutant General of the Army, under date of January 22, 1929. Former instructions governing the railway battalions contained in War Department letter, dated March 14, 1927, are rescinded. The following instructions have precedence over the provisions of Army Regulations 140-5, when they are not in agreement:

Initial appointments, reappointments, promotions and separations of officers of the engineer railway battalions will be made by the War Department upon the recommendations of corps area commanders.

Engineer railway battalions will be so organized by corps area commanders as to utilize the trained personnel of the railroad to which the battalion is allocated. The position of a battalion commander should generally be filled by a divi-

sion superintendent and those of company commanders of the maintenance-of-way company, maintenance-of-equipment company and operating company by division engineers, master mechanics and trainmasters, respectively.

Original appointments may be made in any grade not above major. Applications for appointment will be submitted in duplicate on W.D. A.G.O. Form No. 110 with a report of physical examination on W.D. A.G.O. Form No. 63. Where the position of battalion commander is concerned, there will be forwarded also a recommendation by the president of the railroad or by such other executive officer of the railroad as may be designated by him. For subordinate positions, recommendation by the battalion commander will be forwarded. If not included in the letter of recommendation, the position held by the applicant will be stated in forwarding the application. The specific assignment for which desired will also be stated.

Neither credit hours, certificate of capacity, nor time in grade is required for reappointment with assignment privileges, or for promotion. Recommendations for reappointment or for promotion will be accompanied by reports of physical examination, and will include a statement of the railroad position and reserve assignment held by the reserve officer. For promotion, recommendation and statements as indicated in the preceding paragraph will be forwarded.

No officer will be assigned or remain assigned to an engineer railway battalion allocated to a railroad system when not an employee of that company.

In making assignments to engineer railway battalions and in recommending officers for appointment, reappointment and promotion therein, corps area commanders will obtain and carefully consider the recommendations of responsible officers of the railroad to which the battalion is allocated.

The commission of a reserve officer, appointed, reappointed, or promoted in the officers' reserve corps for the purpose of accepting an assignment in an engineer railway battalion, will be terminated upon his separation from the battalion to which assigned. In each case the name and grade of the officer and the cause of the separation from the battalion will be reported promptly to this office for discharge.

The Drocourt Collision

The latest reports indicate that the total number of persons killed in the collision on the Canadian National at Drocourt, Ont., on March 20, was 17, though a number of bodies were so burned as to be unrecognizable and the exact number of deaths is still unknown. Of the passengers burned to death in the colonist car in the westbound train, a number are supposed to have had no friends or relatives in Canada, making identification very slow. It is said that this car was of wood and that in it was a stove used by passengers for heating their food. From the coals in this stove the car undoubtedly caught fire. The only bodies certainly identified are those of the conductor of the westbound train, one fireman, one express messenger and two brakemen, one of whom was off duty. The total number of passengers killed appears to remain at 13.

The eastbound train, No. 4, superior by direction, was behind time; the westbound train No. 3 had been given the right of road to Drocourt only, and the movement of this train beyond the station, in violation of the train order is given, apparently on the authority of an officer of the road, as the cause of the collision.

An inquest held by Magistrate J. D. Broughton at Parry Sound, Ont., on March 25, is reported by the Canadian Press. Engineer J. V. Alexander and Fireman E. Riley, of the westbound train, No. 3, admitted that they had received and understood the meeting order, but that nevertheless they had passed the station (Drocourt). The collision occurred about three-fourths of a mile beyond. The fire- (Continued on page 756)

Operating Statistics of Large Steam Railways—Selected Items for January, 1929, Comp.

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line			
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross. Excluding locomotives and tenders	Net. Revenue and non-revenue	Servicable	Unserviceable	Percent unserviceable	Stored
New England Region:												
Boston & Albany	1929 407	201,650	213,327	21,668	4,744	67.6	244,462	91,377	104	19	15.6	32
	1928 407	199,202	212,931	23,552	4,722	64.3	246,652	87,526	108	14	11.5	8
Boston & Maine	1929 2,070	387,840	465,891	59,499	12,252	70.8	619,427	240,367	285	42	12.9	70
	1928 2,074	448,509	544,979	52,912	11,492	67.4	604,808	228,564	263	60	18.5	11
N. Y., New H. & Hart.	1929 2,102	511,796	569,361	34,594	14,801	67.9	782,384	312,326	287	73	20.2	30
	1928 2,146	543,931	592,394	36,640	14,287	65.9	757,284	295,299	317	60	16.0	43
Great Lakes Region:												
Delaware & Hudson	1929 875	323,851	421,505	39,307	9,454	64.3	583,224	278,153	235	37	13.7	82
	1928 875	306,725	406,365	47,625	8,457	63.8	519,443	244,273	248	31	11.0	97
Del. Lack. & Western	1929 998	559,348	629,463	73,226	17,247	66.8	991,653	425,438	235	52	18.0	10
	1928 998	509,129	574,234	64,938	15,529	66.1	889,188	374,298	255	51	16.6	14
Erie (inc. Chi. & Erie)	1929 2,317	922,259	998,773	80,203	38,326	64.0	2,326,225	1,001,977	413	100	19.4	46
	1928 2,317	921,265	1,013,432	78,592	34,696	63.1	2,078,719	866,565	438	106	19.5	36
Lehigh Valley	1929 1,343	535,845	606,009	66,094	16,426	65.0	974,812	423,974	322	83	20.4	36
	1928 1,345	534,954	586,537	68,089	15,610	63.6	922,622	387,006	360	76	17.4	85
Michigan Central	1929 1,822	586,021	596,689	18,846	19,284	61.3	1,087,419	383,081	209	45	17.8	33
	1928 1,822	564,463	578,400	17,688	17,492	58.9	1,007,888	346,218	212	75	26.1	46
New York Central	1929 6,459	21,159,922	2,443,934	166,927	76,859	61.1	4,786,558	2,054,865	954	386	28.8	147
	1928 6,459	1,996,983	2,229,554	155,550	71,816	60.5	4,437,628	1,871,176	1,111	311	21.9	341
New York, Chi. & St. L.	1929 1,665	679,653	687,955	7,665	21,182	62.2	1,216,198	463,776	223	56	20.0	48
	1928 1,665	628,887	639,140	7,249	19,682	62.4	1,107,760	411,488	228	50	18.1	66
Pere Marquette	1929 2,178	423,055	426,344	4,241	10,025	62.1	611,163	265,569	180	29	14.0	21
	1928 2,181	385,194	387,819	4,184	9,484	61.5	571,883	242,082	181	36	16.7	34
Pitts. & Lake Erie	1929 231	133,341	135,832	1,994	4,656	59.0	370,668	204,948	54	12	17.6	12
	1928 231	118,930	120,140	2,166	3,898	59.5	323,575	179,027	55	17	23.7	13
Wabash	1929 2,497	890,019	930,489	12,783	24,865	64.1	1,418,514	537,338	292	72	19.7	25
	1928 2,497	741,282	777,103	12,699	21,727	63.8	1,232,157	465,587	309	58	15.9	67
Central Eastern Region:												
Baltimore & Ohio	1929 5,536	2,004,924	2,395,877	166,530	55,811	60.8	3,786,585	1,779,618	991	240	19.5	105
	1928 5,534	1,896,473	2,035,230	163,754	51,531	60.1	3,483,986	1,623,888	1,036	229	18.1	143
Central of New Jersey	1929 691	272,010	292,589	44,072	7,500	57.0	518,700	244,372	183	26	12.3	21
	1928 691	247,015	266,622	46,198	6,643	57.5	449,972	212,124	186	31	14.1	44
Chicago & Eastern Ill.	1929 946	281,281	283,246	3,726	6,885	63.2	444,306	208,879	92	67	41.9	13
	1928 945	280,340	282,325	3,802	6,616	59.6	440,221	203,201	104	45	30.2	25
Clev., Cin., Chi. & St. L.	1929 2,371	823,655	855,232	21,520	24,116	60.4	1,604,362	747,524	304	125	29.2	9
	1928 2,373	764,527	793,851	18,854	21,937	60.1	1,479,384	693,652	342	89	20.6	49
Elgin, Joliet & Eastern	1929 452	153,642	163,000	8,305	3,860	62.6	295,262	154,108	84	8	9.1	...
	1928 461	142,335	151,567	7,558	3,694	60.8	282,913	146,217	82	9	9.6	...
Long Island	1929 396	41,016	45,326	15,730	558	55.1	36,251	13,886	49	8	14.7	1
	1928 396	44,021	47,104	12,002	532	56.1	35,459	13,789	35	8	18.3	...
Pennsylvania System	1929 10,738	3,956,694	4,581,740	428,165	129,628	63.2	8,617,936	4,018,365	2,723	327	10.7	684
	1928 10,844	3,890,965	4,377,648	384,190	119,236	62.5	7,887,210	3,610,193	2,865	373	11.5	863
Reading	1929 1,453	692,977	760,351	52,661	17,528	58.4	1,250,851	618,347	337	76	18.4	24
	1928 1,417	648,935	702,736	66,275	15,890	57.5	1,152,588	567,029	332	81	19.5	45
Pocahontas Region:												
Chesapeake & Ohio	1929 2,730	1,170,825	1,261,443	50,580	38,801	56.6	3,151,786	1,710,371	530	97	15.5	47
	1928 2,717	1,155,047	1,259,075	52,765	35,746	55.7	2,931,770	1,575,400	547	97	15.1	69
Norfolk & Western	1929 2,230	889,102	1,040,390	39,735	32,124	59.7	2,713,466	1,484,361	487	56	10.3	116
	1928 2,231	782,850	939,195	32,730	26,278	59.0	2,213,066	1,170,161	533	54	9.2	160
Southern Region:												
Atlantic Coast Line	1929 5,143	698,494	701,846	8,216	18,036	62.2	979,741	361,327	437	49	10.0	89
	1928 5,105	716,430	721,760	12,850	17,643	59.7	1,020,345	390,328	410	62	13.1	79
Central of Georgia	1929 1,898	252,075	253,783	3,745	6,251	70.3	332,211	134,797	132	19	12.7	12
	1928 1,898	251,982	253,778	4,759	6,222	70.0	333,537	140,251	142	18	11.1	17
Ill. Cent. (in. Y. & M. V.)	1929 6,713	2,107,661	2,119,304	33,448	53,539	62.1	3,568,537	1,569,172	737	115	13.5	15
	1928 6,594	1,973,185	1,988,464	47,970	51,001	61.1	3,423,351	1,488,331	775	112	12.6	22
Louisville & Nashville	1929 5,066	1,627,566	1,706,509	59,274	33,947	59.7	2,353,477	1,145,588	586	108	15.5	43
	1928 5,061	1,694,184	1,774,760	60,548	33,619	58.0	2,362,896	1,134,332	611	104	14.6	35
Seaboard Air Line	1929 4,475	586,571	604,040	7,409	14,743	62.0	853,259	310,152	250	64	20.4	...
	1928 4,484	559,841	569,514	10,650	13,544	63.1	775,517	297,244	255	60	19.1	11
Southern	1929 6,679	1,451,561	1,482,990	33,109	35,441	64.9	1,973,516	795,743	833	131	13.6	112
	1928 6,720	1,363,127	1,386,991	31,329	33,918	66.4	1,875,175	773,397	831	123	12.9	92
Northwestern Region:												
Chi. & North Western	1929 8,467	1,435,402	1,536,941	29,116	31,787	63.5	1,915,063	745,778	766	91	10.6	103
	1928 8,463	1,398,823	1,454,124	23,444	32,776	61.9	1,946,219	771,234	817	119	12.7	167
Chi., Milw., St. P. & Pac.	1929 11,248	1,699,835	1,869,402	108,362	44,266	65.7	2,591,478	1,110,199	805	132	14.1	172
	1928 11,249	1,624,495	1,747,484	106,732	44,250	64.9	2,594,799	1,111,871	832	133	13.8	188
Chi., St. P., Minn. & Om.	1929 1,724	339,057	367,416	17,217	6,125	63.5	357,590	149,063	158	21	11.7	21
	1928 1,724	337,228	367,450	18,929	6,504	63.1	381,291	160,327	156	28	15.1	15
Great Northern	1929 8,156	714,418	717,769	42,396	22,456	69.5	1,294,727	594,456	552	121	18.0	30
	1928 8,156	674,475	683,766	5,500	11,256	70.7	590,378	262,220	208	30	12.1	23
Minn., St. P. & S												

ared with January, 1928, for Roads with Annual Operating Revenues Above \$25,000,000

Stored	Region, road and year	Average number of freight cars on line			Gross ton-miles per			Net ton-miles per			Pounds of coal per 1,000 gross ton-miles			Locomo- tive miles per day
		Home	Foreign	Total	Per train	Gross tons per train, excluding locomotives and tenders	Net tons per train	Net tons per loaded car	Net tons per car-day	Car miles per car-day	Car miles per day	Locomo- tive miles per day		
32	New England Region:													
8	Boston & Albany.....1929	3,560	4,721	8,281	4.2	16,937	1,212	.453	19.3	356	27.3	7,241	196	61.7
70	1928	4,169	4,384	8,553	4.3	17,470	1,238	.439	18.5	330	27.7	6,937	203	62.7
11	Boston & Maine.....1929	10,915	10,581	21,496	2.9	19,639	1,597	.620	19.6	361	26.0	3,747	129	51.8
30	1928	12,852	9,885	22,737	4.8	15,733	1,348	.510	19.9	324	24.2	3,555	140	59.7
43	N. Y., New H. & Hart.....1929	15,595	14,702	30,297	11.6	20,412	1,529	.610	21.1	333	23.2	4,794	127	54.2
82	1928	17,781	14,971	32,752	10.2	18,426	1,392	.543	20.7	291	21.4	4,451	135	53.7
97	Great Lakes Region:													
10	Delaware & Hudson.....1929	9,333	5,232	14,565	3.3	21,981	1,301	.859	29.4	616	32.6	10,255	154	54.6
14	1928	10,415	4,977	15,392	3.7	20,618	1,694	.796	28.9	512	27.8	9,006	161	52.5
46	Del., Lack. & Western.....1929	18,122	7,038	25,160	3.5	22,245	1,773	.761	24.7	545	33.1	13,749	159	79.2
36	1928	19,491	6,134	25,625	4.0	21,781	1,746	.735	24.1	471	29.6	12,098	155	67.4
85	Erie (in. Chi. & Erie).....1929	32,344	19,121	51,465	3.9	31,769	2,522	1,086	26.1	628	37.5	13,951	127	67.8
33	1928	33,584	17,421	51,005	5.1	27,856	2,256	.941	25.0	548	34.8	12,066	141	64.8
46	Lehigh Valley.....1929	21,927	8,566	30,493	9.3	24,407	1,760	.766	25.8	449	26.7	10,180	167	53.5
12	1928	23,915	7,787	31,702	8.3	24,033	1,725	.723	24.8	394	25.0	9,278	172	48.4
147	Michigan Central.....1929	22,706	15,671	38,377	5.0	29,171	1,856	.654	19.9	322	26.4	6,782	127	78.2
341	1928	24,009	13,510	37,519	4.0	28,354	1,786	.613	19.8	298	25.6	6,130	130	68.9
48	New York Central.....1929	78,166	65,930	144,096	4.7	28,712	2,216	.951	26.7	460	28.1	10,262	124	62.9
66	1928	78,210	64,689	142,899	4.2	28,769	2,222	.937	26.1	422	26.8	9,345	124	54.1
21	New York, Chi. & St. L.....1929	14,224	9,824	24,048	6.4	24,694	1,789	.682	21.9	622	45.7	8,987	125	80.4
34	1928	15,097	9,725	24,882	6.8	24,631	1,761	.654	20.9	535	41.0	7,973	120	74.8
12	Pere Marquette.....1929	11,791	7,525	19,316	3.7	19,036	1,445	.628	26.5	444	27.0	3,934	121	66.5
23	1928	12,362	6,891	19,253	3.8	19,369	1,485	.628	25.5	406	25.8	3,581	120	58.1
67	Pitts. & Lake Erie.....1929	15,224	7,525	22,749	11.3	30,485	2,780	1,537	44.0	291	11.2	28,587	125	67.4
105	1928	17,123	5,775	22,898	4.0	30,604	2,721	1,505	45.9	252	9.2	24,971	111	55.1
143	Wabash.....1929	15,199	13,406	28,605	2.7	24,244	1,594	.604	21.6	606	43.8	6,943	148	83.8
21	1928	17,951	10,644	28,595	2.4	26,106	1,662	.628	21.4	525	38.4	6,015	144	69.3
44	Central Eastern Region:													
13	Baltimore & Ohio.....1929	75,205	27,372	102,577	5.3	21,727	1,889	.888	31.9	560	28.9	10,369	171	67.1
25	1928	78,800	26,425	105,225	4.8	20,905	1,837	.856	31.5	498	26.3	9,465	167	61.2
9	Central of New Jersey.....1929	18,702	10,512	29,414	6.2	22,262	1,907	.898	32.6	268	14.4	11,408	168	52.0
49	1928	20,333	10,165	30,498	5.7	19,997	1,822	.859	31.9	224	12.2	9,903	167	46.7
1	Chicago & Eastern Ill.....1929	12,848	3,937	16,785	38.7	22,865	1,580	.743	30.3	401	20.9	7,121	151	58.3
86	1928	14,024	3,671	17,695	30.3	22,122	1,570	.725	30.7	370	20.2	6,935	154	61.7
24	Clev., Cin., Chi. & St. L.....1929	23,739	18,321	42,060	4.3	26,728	1,948	.908	31.0	573	30.6	10,170	135	66.0
45	1928	24,392	19,916	44,308	3.5	25,209	1,935	.907	31.6	505	26.6	9,429	139	60.9
1	Elgin, Joliet & Eastern.....1929	9,410	7,655	17,065	5.5	12,935	1,922	1,003	39.9	291	11.7	11,002	160	60.1
684	1928	9,273	7,013	16,286	5.4	10,511	1,988	1,027	39.6	290	12.0	10,241	157	56.4
863	Long Island.....1929	1,655	4,155	5,810	2.5	5,248	884	.339	24.9	77	5.6	1,131	458	34.6
24	1928	1,735	3,962	5,697	1.4	4,552	806	.313	25.9	78	5.4	1,124	316	44.1
45	Pennsylvania System.....1929	220,005	74,465	294,470	5.8	25,951	2,178	1,016	31.0	440	22.5	12,071	143	53.0
47	1928	228,024	68,320	296,344	6.1	23,355	2,027	.928	30.3	393	20.8	10,740	149	47.4
47	Reading.....1929	30,087	13,214	43,301	3.2	20,610	1,805	.892	35.3	461	22.4	13,728	164	63.4
47	1928	32,485	11,588	44,073	2.2	19,899	1,776	.874	35.7	415	20.2	12,907	155	60.1
89	Pocahontas Region:													
116	Chesapeake & Ohio.....1929	31,705	8,984	40,689	2.4	33,347	2,692	1,461	44.1	1,356	54.4	20,208	99	67.5
160	1928	34,137	8,802	42,939	3.1	30,244	2,538	1,364	44.1	1,184	48.2	18,707	109	65.7
89	Norfolk & Western.....1929	29,630	7,896	37,526	1.0	41,914	3,052	1,670	46.2	1,276	46.3	21,471	136	64.2
79	1928	32,887	6,981	39,868	1.4	38,552	2,827	1,495	44.5	947	36.0	16,916	148	53.4
12	Southern Region:													
15	Atlantic Coast Line.....1929	25,644	9,937	35,581	5.3	19,449	1,403	.517	20.0	328	26.3	2,266	114	47.1
17	1928	26,520	10,156	36,676	5.9	18,786	1,424	.545	22.1	343	26.0	2,467	119	50.2
15	Central of Georgia.....1929	5,337	3,378	8,715	5.3	18,794	1,318	.535	21.6	499	32.9	2,291	136	55.0
35	1928	5,504	4,270	9,774	4.0	18,420	1,324	.557	22.5	463	29.3	2,384	150	52.1
43	Ill. Cent. (inc. Y.&M.V.).....1929	41,993	21,021	63,014	3.7	22,641	1,693	.745	29.3	803	44.1	7,541	152	81.5
35	1928	45,251	18,464	63,715	5.9	23,349	1,735	.754	29.2	754	42.3	7,281	147	74.1
11	Louisville & Nashville.....1929	43,619	14,482	58,101	9.9	18,442	1,446	.704	33.7	636	31.5	7,295	159	82.1
92	1928	44,243	16,102	60,345	9.7	16,408	1,395	.670	33.7	606	31.0	7,230	167	82.8
12	Seaboard Air Line.....1929	17,277	8,895	26,172	6.2	18,991	1,455	.529	21.0	382	29.3	2,236	137	62.9
12	1928	17,584	8,585	26,169	5.5	17,226	1,385	.531	21.9	366	26.4	2,139	150	59.5
103	Southern.....1929	50,865	16,063	66,928	8.9	18,493	1,360	.548	22.5	384	26.3	3,843	169	50.7
103	1928	47,255	18,959	66,214	6.1	17,736	1,376	.567	22.8	377	24.9	3,712	175	47.9
172	Northwestern Region:													
188	Chi. & North Western.....1929	48,124	29,427	77,551	5.8	16,831	1,334	.520	23.5	310	20.8	2,841	171	58.9
21	1928	46,662	25,173	71,835	5.4	17,648	1,391	.551	23.5	346	23.8	2,940	148	50.9
15	Chi., Mil., St. P. & Pac.....1929	51,474	24,487	75,961	2.8	19,376	1,525	.653	25.1	471	28.6	3,184	163	68.1
86	1928	50,974	20,591	71,565	3.7	20,518	1,597							

News of the Week

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man had been accepted as a qualified engineman; he had run with Alexander only two weeks. Conductor Barstead was killed in the collision. The engineman and fireman said that he had not given the required signal to the locomotive approaching the meeting point.

The magistrate, sitting without a jury, held that the whole crew had failed in its duty. Counsel for Charles Gorrie, rear brakeman, asked that his client be exonerated, but this the magistrate declined to do, saying that the meeting order had been known to all members of the crew. Gorrie knew that the train passed Drocourt, and says that he at once moved to apply the brakes, but apparently this was not until the engineman had seen the opposing train and had applied the brakes.

The general superintendent of the road was unable to say how many persons had been killed, but said that the latest estimate was twelve.

Other Western Roads Increase Shopmen's Wages

Conforming to recent wage increases on the New York Central, a number of Western railroads, the Atchison, Topeka & Santa Fe, the Missouri-Kansas-Texas and the Southern Pacific (Texas and Louisiana lines) have made individual agreements awarding increases in wages to their mechanical department employees which vary from 1 cent to 5 cents an hour. This establishes a standard rate of 81 cents an hour for mechanics on most western railroads where negotiations have recently been held.

The order on the Santa Fe System involves about 11,000 employees and gives an increase of five cents an hour to mechanics, helpers and apprentices and 2 cents an hour to coach cleaners. The present agreement, which became effective as of March 1, does not include the Kansas City, Mexico & Orient.

On the Katy the award affects 2,400 men in the mechanical and car departments and was based on an increase of 5 cents an hour for mechanics, 3 cents and 4 cents an hour for semi-skilled mechanics, 3 cents an hour for helpers and 1 cent to 5 cents an hour for apprentices. The agreement will remain in effect for three years.

About 5,000 shopmen received wage increases on the Southern Pacific and Texas and Louisiana through an agreement which became effective on March 16. The annual payroll will be increased about \$400,000. Metal craft mechanics, including machinists, boilermakers, blacksmiths' sheet metal workers, electricians, passenger carmen, locomotive painters and electroplaters were given an increase in wages of 5 cents an hour, car builders and car inspectors were increased 4 cents an hour, freight carmen or car repairers were increased 3 cents an hour, locomotive department helpers were increased from 1 cent to 2 cents, car department helpers were increased 1 cent and apprentices were increased from 1 cent to 4 cents.

Traffic

The following shippers' regional advisory boards will hold meetings in April: The Great Lakes Regional Advisory Board on April 3 at the Commodore Perry, Toledo, Ohio; the Ohio Valley Regional Advisory Board on April 9 at Columbus, Ohio; and the Northwest Shippers' Advisory Board on April 18 at Aberdeen, S. D.

The Interstate Commerce Commission on March 27 issued Service Order No. 49 authorizing and directing the Central of Georgia, because of flood conditions, to forward traffic now held by it at Flora, Ala., destined to points in Alabama and elsewhere, via the Louisville & Nashville to Andalusia, Ala., to expedite its movement and prevent congestion.

At the annual meeting of the Traffic Club of Chicago on March 26, the following officers were elected for the ensuing year: President, Allen R. Gould, assistant freight and passenger traffic manager of the Chicago & North Western; first vice-president, C. T. Bradford, manager, traffic department, International Harvester Company; second vice-president, J. H. Mangold, general freight agent, Elgin, Joliet & Eastern; third vice-president, Robert Hula, traffic manager, Clayton, Mark & Company; secretary, H. E. MacNiven, agent of the New York Life Insurance Company and treasurer, J. H. Howard, assistant to the vice-president in charge of traffic, Chicago, Milwaukee, St. Paul & Pacific.

The right of a railroad company to prohibit motor coach companies from soliciting or taking up passengers on its property, was sustained by the Court of Appeals at Frankfort, Ky., on February 20, when it confirmed a temporary injunction granted the railroad by a lower court. The Safety Coach & Transfer Company, which operates motor coaches between Corbin, Ky., and Middlesborough, was ordered by O. S. Henry, state commissioner of motor transportation, to have its coaches meet and connect with the passenger trains of the Louisville & Nashville, for the convenience of the public. The injunction granted the railroad relief at Pineville, Ky. The Appellate court held that the order of the transportation commissioner to meet trains had no bearing on the position of the motor coach company, inasmuch as it did not pay rental for use of the railroad grounds.

Lake Cargo Coal Rates Controversy Renewed

The long-standing controversy over the adjustment of lake cargo coal rates has again been brought before the Interstate Commerce Commission by the filing of protests against tariffs filed by the Baltimore & Ohio, the New York Central and other roads proposing reductions of 5 cents a ton in rates from the Fairmont and related districts of West Virginia and the Clearfield and related

districts of Pennsylvania. The Western Pennsylvania Coal Traffic Bureau, in asking the commission to suspend the tariffs, alleges on information and belief that the \$1.81 rate from the southern coal district which went into effect on January 1 under the so-called compromise tariffs, which effected a 35-cent differential over the rates from the Northern district, was pursuant to a written agreement among the carriers participating in the transportation and that the proposed Fairmont reduction represents a further step in an unlawful understanding and agreement between the northern and southern roads. It asks the commission to investigate not only the proposed rates but also the relationships among the roads involved. The petition also asserts that the effect of the action of the Supreme Court in refusing to review the decision of the lower court which enjoined the commission's latest order in the lake cargo cases was to remove the legal bar against action by the commission looking to the effectiveness of its order, which would have provided for a 45-cent differential, and that no good reason exists for contemplation of a permanent bar against a 45-cent differential. The Pittsburgh & West Virginia and the Wheeling & Lake Erie have also asked the suspension of the tariffs from the Fairmont and related districts.

Allegheny Regional Advisory Board

The Allegheny Regional Advisory Board held its ninth regular meeting at Washington, Pa., on March 21. The reports of the commodity committees were pervaded almost universally with optimism, the chief exception being that the coal mining industries have not yet been revived.

Taking all commodities together, the reports indicate for the ensuing three months, an increase of 14 per cent in freight shipments over the same quarter of 1928. The largest expected increases are those on coal and coke, 17.6 per cent; gravel, sand and stone, 12.6 per cent; petroleum, 8.5 per cent; lime, 8.3 per cent; agricultural implements, etc., 8.2 per cent; chemicals and explosives, 13.5 per cent; canned goods, 12.8 per cent. In grain the expectation is for a decrease of 10 per cent in volume and in flour, meal, etc., five per cent. Potatoes in carloads, increase, 10 per cent. The coal and coke committee segregates its increases expected as follows: Eastern Ohio, 45.6 per cent; Northern West Virginia, 12.7 per cent; Western Pennsylvania (high volatile) 22.8 per cent; Central Pennsylvania (low volatile) 13.8 per cent. It is expected there will be an increase of 8.7 per cent in the shipment of coke.

Railroads Asked to Consider Export Coal Rates

"Now that the government is giving coal exports the same encouragement that it gives to the export of other staples, the Coal Exporters' Association of the United States is asking the railroads to consider the advisability of encouraging

exports of coal "by publishing a proper rate on coal exports via tidewater," according to a bulletin issued by Arthur Hale, chairman of the association.

"The Shipping Board has for many years been encouraging the export of grain, lumber, and other staples," he says. Until recently, it has made an exception of coal. Now with the approval of Congress, the board is encouraging the export of coal, and is putting a fleet of eight vessels in the coal trade. They are open for charter for single trips or for series of trips up to June 30, 1930.

The first of these vessels, the Wacosta, sailed for Algiers on November 16, 1928, and sailed on its second trip to Italy on January 24, 1929. The second vessel, the Arizpa, sailed from Baltimore on December 28, 1928 and on its second trip on February 28, 1929. Both voyages were for Italy. Five more vessels, making seven in all, have sailed, and the eighth, the Ossining, is chartered to sail next month. These vessels have taken in all 56,339 tons of coal and if they are continued in this trade, can take about 85,000 tons more before the end of the fiscal year, a total of about 140,000 tons. They could carry over 250,000 tons in twelve months.

Some of the tonnage carried by these vessels would probably have been moved in foreign vessels if the Shipping Board boats had not been available, it is stated, but it is estimated that about 20,000 tons of the present total is new business. The Shipping Board has named rates only to the Mediterranean and South America, the markets where the United States has lost most trade, and since January first, more coal has been exported to these markets in Shipping Board boats than in other boats.

New Train Services for the Summer

The New York Central and the Pennsylvania announce numerous improvements in their passenger train service beginning with the new timetables which go into effect on April 28. As heretofore announced, the 20-hour trains between New York and Chicago are to have their schedules changed to accord with Daylight Saving time.

NEW YORK CENTRAL LINES.—The New York Central is to put on the "Knickerbocker", leaving St. Louis at noon and Chicago at 3 p.m. and arriving in New York at 12:50 p.m. the next day. There will be a section lounge car, of new design between Chicago and New York.

The Cleveland Limited, to leave New York at 7:45 p.m., will arrive at Cleveland at 8:35 a.m., making the run one hour, 10 minutes, quicker than the fastest present service; and the train will have a sleeping car from New York for Chicago which will be attached at Cleveland to the Lake Shore Limited so as to reach Chicago in 21 hours from New York.

A new service is to be provided between Pittsburgh and St. Louis and between Pittsburgh and Chicago; leave Pittsburgh at 9:30 p.m., arrive at Chicago at 8 a.m., St. Louis 1:30 p.m.; east bound,

St. Louis 5 p.m., Chicago, 9 p.m., Pittsburgh, 9 a.m.

The "Fort Orange" will be a new train from New York to Utica, starting at 1:15 a.m. The "Wolverine" between New York and Chicago, by way of the Michigan Central, will be run through in 21 hours, one hour quicker than at present. The Empire State Express, New York to Buffalo, 440 miles will go through in 8 hours, 45 minutes; 15 minutes better than at present.

The "Ohio State Limited" will leave Cincinnati at 2:50 p.m. and run through to New York about one hour faster than at present. The "Sycamore", Chicago to Indianapolis, will start at 3:10 p.m. and will run through to Cincinnati.

The "Motor Queen", a coach train, is one of two handsome new trains announced by the New York Central Lines with the cars decorated in a rich brown with gold stripes, and a strip of fawn along the sides. This train will be run between Cincinnati and Detroit over the Big Four and the Michigan Central, making the trip in 7 hours; leave Cincinnati 3:20 p.m., leave Detroit, 3 p.m.

Another new train to be decorated in special colors is the "Niagara Falls De Luxe" to be run over the Michigan Central between Buffalo and Chicago, in 10½ hours; leave Buffalo 10 a.m., leave Chicago 8 a.m. These de luxe trains will be made up like the all-coach train between New York and Buffalo which was put on last year.

The "Motor Queen" trains are now under construction in the Beech Grove shops of the Big Four. Each will consist of a combination baggage-club car with movable leather upholstered chairs, two coaches with individual bucket-type seats, a dining-lounge car, and an observation car with 52 upholstered chairs. It is planned to place the trains on display, prior to the 28th, at Middletown, Ohio, Springfield, Dayton, Bellefontaine, Kenton, Findlay, Bowling Green and Toledo.

THE PENNSYLVANIA.—The Cincinnati Limited will leave Cincinnati at 4:20 p.m. and run through to New York in 17 hours, 5 minutes, about one hour faster than the present time. Westbound the saving will be about 40 minutes. A new train, No. 67, leaving New York at 10:45 p.m., Eastern Standard time will be scheduled to deliver passengers in Cincinnati at 5:35 p.m., Central Standard time. Other improvements are to be made on eastbound runs from Cincinnati.

A new train is to be established from Chicago to New York leaving at 3 p.m., Central time, and making the same speed as the Manhattan Limited, 20 hours, 50 minutes. The new train leaving New York at 10:45 p.m. will have sleeping cars for Chicago.

The Pennsylvania Limited, No. 5, will be made to conform to Daylight Saving time, leaving New York at 12:05 p.m., Eastern Standard time, (1:05 Daylight Saving time).

The "Metropolitan", limited train between New York and Chicago will conform to Daylight Saving time west of Pittsburgh; leave Pittsburgh 8:30 p.m., arrive in Chicago 7 a.m.

Equipment and Supplies

Locomotives

THE ELGIN, JOLIET & EASTERN is inquiring for six 2-8-2 type locomotives.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE is inquiring for ten 2-8-2 type locomotives.

THE STANDARD OIL COMPANY OF INDIANA is inquiring for one or two six-wheel switching locomotives.

THE SOUTHERN PACIFIC is inquiring for eight 4-8-2 type locomotives and ten extra locomotive tenders.

THE NORFOLK & WESTERN will build 30 locomotive tenders of 18,000 gal. capacity at its Roanoke shop.

THE AKRON & BARBERTON BELT is inquiring for three eight-wheel switching locomotives.

THE TIENTSIN-PUKOW, Tientsin, Hopei, China, has ordered ten 2-8-2 type locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of February 23.

THE NEW YORK, ONTARIO & WESTERN has ordered ten locomotives of the 4-8-2 type and six extra locomotive tenders of 12,000 gal. capacity, from the American Locomotive Company. The locomotives will have 27 by 30-in. cylinders and a total weight in working order of 363,000 lb. Inquiry for this equipment was reported in the *Railway Age* of March 9.

Freight Cars

New York Central Orders 4,500 Freight Cars

The New York Central has placed orders for 4,500 freight cars to cost about \$10,000,000. The orders for these cars were divided among the following manufacturers:

No.	Type	Road	Builder
1,000	Box	N. Y. C.	Am. Car & Fdy.
1,000	Gondola	N. Y. C.	Pressed Steel
500	Gondola	N. Y. C.	Gen. Amer. Car
1,000	Auto-box	M. C.	Pullman
500	Box	P. & L. E.	Standard Steel
500	Hopper	B. & A.	Standard Steel

Inquiry for 4,300 cars was reported in the *Railway Age* of March 2.

THE PACIFIC FRUIT EXPRESS is inquiring for 600 underframes.

THE BUREAU OF SUPPLIES AND ACCOUNTS, Navy Department, is inquiring for one gondola car of 50 tons' capacity for the Great Lakes Naval station.

THE ANGLO-CHILEAN CONSOLIDATED NITRATE CORPORATION, New York, is inquiring for 100 steel ore cars of 30 tons capacity for export to Chili.

THE AMERICAN ROLLING MILL COMPANY is inquiring for five all steel flat cars and five low side steel gondola cars of 50 tons capacity.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 500 steel underframes for box cars and 100 underframes for ice cars from the Bettendorf Company. Inquiries for this equipment were reported in the *Railway Age* of March 9 and March 16.

THE NORTHERN PACIFIC has ordered 500 gondola cars of 70 tons' capacity from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of February 2. This company has also issued an inquiry for 100 stock cars.

Passenger Cars

THE CHICAGO & NORTHWESTERN is inquiring for from 24 to 72 suburban cars.

THE SOUTHERN PACIFIC is inquiring for 21 gas-electric rail motor cars.

THE LOUISVILLE & NASHVILLE has ordered four dining cars from the American Car & Foundry Company.

Iron and Steel

THE LEHIGH VALLEY is inquiring for 10,000 tons of 136-lb. rail in 66-ft. lengths.

THE SOUTHERN has ordered 43,500 tons of rail, enough to lay 263 miles of track for delivery during April, May and June. The purchase includes 11,700 tons of 130-lb. section, 28,800 tons of 100-lb., and 3,000 tons of 85-lb. Of the total, 28,800 tons were bought from the Tennessee Coal, Iron & Railroad Company 12,700 tons from the Bethlehem Steel Company, and 2,000 tons from the Illinois Steel Company. During 1928, the Southern equipped 584 miles of track with heavier rail, 370 miles being laid with new rail and 214 miles with relay rail.

Machinery and Tools

THE GULF REFINING COMPANY, West Port Arthur, Tex., has ordered from Manning, Maxwell & Moore, Inc. one Defiance No. 5-A horizontal boring, milling and drilling machine.

THE MT. VERNON CAR MANUFACTURING COMPANY has ordered from Manning, Maxwell & Moore, Inc., Shaw cranes for its subsidiary plant, the Devine Manufacturing Company, Mt. Vernon, Ill., as follows:

- 1 Shaw 30-ton crane with 5-ton auxiliary, 55 ft. span
- 1 Shaw 10-ton crane 55 ft. span
- 1 Shaw 5-ton crane 45 ft. span
- 1 Shaw 35-ton crane with 5-ton auxiliary, 75 ft. span
- 1 Shaw 10-ton crane 75 ft. span
- 2 Shaw 5-ton cranes 50 ft. span
- 1 Shaw 10-ton crane 22 ft. 5½ in. span

All of the above cranes to be operated on 440-volt, 3-phase, 60-cycle circuit.

Signaling

THE GREAT NORTHERN has ordered from the General Railway Signal Company material for a mechanical interlocking, 24 levers, to be installed at Allouez, Wis.

THE MICHIGAN CENTRAL has ordered from the General Railway Signal Company material for an electric interlocking at West Detroit, Mich., the machine to have 101 working levers.

THE NEW YORK, CHICAGO & ST. LOUIS has contracted with the Union Switch & Signal Company for material for the installation of automatic color light signals between Arcadia, Ohio, and Edgerton, Ind., 68 miles, single track. The cost of this installation is estimated at \$270,000.

THE MISSOURI PACIFIC has ordered from the General Railway Signal Company, material for the installation of automatic block signals between Bixby, Tex., and Valley Junction. The order includes 26 position color-light signals, 89 transformers, 174 relays and other material.

CENTRAL OF NEW JERSEY.—Division 6 of the Interstate Commerce Commission has issued a report approving, with certain exceptions, the installation of the continuous induction type code system of the Union Switch & Signal Company on the Perth Amboy branch of the Central of New Jersey and on the New York & Long Branch.

THE CANADIAN PACIFIC plans the installation during 1929 of automatic block signals on its Western lines between Ingolf, Ont., and Busteed, 18 miles; between Maple Creek, Sask., and Dunmore, Alta., 56 miles; and between Spence's Bridge, B. C., and Ruby Creek, 97 miles. Signals will also be installed through the yards at Port Arthur, Ont., Broadview, Sask., Monte Creek, B. C., and Port Moody.

THE NEW YORK CENTRAL has ordered from the General Railway Signal Company two dispatching type control machines to be used for the remote operation of manual block signals at Enos, Ind. and Ginger Hill, Ind. The signals at Enos will be operated from an interlocking station at Morocco, five miles distant, and that at Ginger Hill from North Liberty, four miles distant. The operator in each case has automatic information of the passing of trains at each station and the direction in which they are moving.

Car Retarders at Cedar Hill

The New York, New Haven & Hartford has ordered from the Union Switch & Signal Company material for the installation of electro-pneumatic car retarders at its classification yards at Cedar Hill (New Haven) Conn.; both eastbound and westbound. There will be 44 car retarders, 88 switch movements, the necessary color light signals and other material. Detector track-circuit locking will be provided through all switches.

Supply Trade

THE BERGER MANUFACTURING COMPANY, Canton, Ohio, has acquired the metal furniture department of the **Van Dorn Iron Works Company**, Cleveland.

J. C. LINCOLN, president of the **Lincoln Electric Company**, Cleveland, Ohio, has been elected chairman of the board and will be succeeded by J. F. Lincoln, vice-president.

H. L. Hileary, district manager of **Fairbanks, Morse & Co.**, with headquarters at St. Louis, Mo., has been transferred to New York and will be succeeded by C. H. Wilson, representative at Chicago.

EDWARD L. Holljes has been appointed sales manager for **William Sellers & Company, Incorporated**, Philadelphia, Pa. Mr. Holljes has been directing the sales of the company for a number of years.

THE BUDA COMPANY has given a contract to the Austin Company, Cleveland, Ohio, for the construction of a \$20,000 addition to its Halstead street foundry at Harvey, Ill. The building is to be one story of steel frame construction, 60 by 100 ft. The Austin Company also planned the structure.

CHARLES F. PALMER, who has been identified with the Pittsburgh Steel Products Company for a number of years, has also been elected president of the **C. H. Hollup Corporation**, Chicago, to succeed H. R. Pennington, resigned. A. A. Weigel, formerly of the Edwin S. Woods Company, has been appointed manager of sales of the C. H. Hollup Corporation to succeed K. R. Hare, resigned.

JOHN G. COTTE, who has served for the past three years with the Chicago sales force of the **Reading Iron Company**, Reading, Pa., has been added to the staff of the railroad department, to fill the vacancy caused by the resignation of H. L. Shepard. Mr. Cottle's headquarters will remain at Chicago. CONRAD G. HIGH has been appointed to the sales staff of the Reading Iron Company's Reading district office, and A. C. KNIGHT has been added to the selling staff of the New York office.

R. H. RIPLEY, second vice-president of the **American Steel Foundries**, Chicago, has been promoted to senior vice-president; J. C. DAVIS, fourth vice-president in charge of operations, has been appointed advisory vice-president of operations, and is succeeded by A. W. WALTER, assistant to the fourth vice-president; F. A. LORENZ, Jr., works manager at Indiana Harbor, Ind., has been appointed assistant to the vice-president in charge of operations; F. B. ERNST, assistant to the first vice-president, has been appointed vice-president, sales de-

partment; H. D. Hammond, manager, miscellaneous sales department, has been appointed vice-president in charge of miscellaneous sales and G. F. Slaughter, representative, has been appointed vice-president, sales department.

Ryan Car Company

The annual report as of December 31, 1928, shows a loss of \$17,715 as compared with a profit of \$23,260 for the previous year. Gross sales amounted to \$1,640,225 as compared with \$2,049,071 in 1927. Assets amounted to \$3,291,707 as compared with \$3,092,893. The operating statement follows:

	1928	1927
Gross sales for the year...	\$1,640,225	\$2,049,071
Cost of manufacture (excluding depreciation)...	1,595,137	1,995,874
Profit or loss before depreciation	\$ 45,088	+\$ 53,197
Depreciation charged off.	70,569	92,409
	\$ 25,481	+\$ 39,212
Profit on securities, discounts, interest, miscellaneous debits and credits	7,766	62,472
Profit or loss for year...*	\$ 17,715	+\$ 23,260

* Loss. † Profit.

The statement of President W. M. Ryan to stockholders, in part, follows:

While the year 1928 developed true to forecast and was a poor year for the freight car industry, your company's operations showed very little loss and it is now entering a year which promises more, in this branch of its activities, than any period in the past five years. The orders recently received contain a fair margin of profit for the manufacturer and there is apparently considerable car buying yet to come.

In the other and newer branches of your company's business, there has been very satisfactory progress. The self-propelled steam car for railway use, which was developed jointly with the International Harvester Company, has demonstrated its utility, economy and efficiency in more than fifty thousand miles of regularly scheduled railroad service, and orders and inquiries for units of this type are being received.

General Electric Company

Earnings of the General Electric Company for 1928 amounted to \$54,153,806, equivalent, after dividends on the special stock to \$7.15 a share on the 7,211,481 shares of no par common stock, the annual report of the company made public by President Gerard Swope discloses. This compares with \$6.41 a share in 1927.

Orders received during the year 1928 were \$348,848,512, compared with \$309,784,623 in 1927, an increase of 13 per cent, and unfilled orders at the end of the year were \$72,953,000, compared with \$68,916,000 at the close of 1927, an increase of six per cent.

A comparison of income and expenses for the two years ending December 31 follows:

	1928	1927
Net sales billed	\$337,189,422	\$312,603,772
Less. Cost of sales, including operating, maintenance and depreciation charges, reserves and provision for all taxes	297,528,192	276,454,003
Net income from sales	\$39,661,231	\$36,149,768
Income from other sources:		
Income from associated companies	\$7,198,005	\$5,642,885
Income from miscellaneous securities	879,240	1,010,164
Interest and discount	2,982,000	3,262,924
Income from U. S. Government securities	3,605,780	3,787,064

RAILWAY AGE

Royalties and sundry revenue	3,006,177	1,692,882
	\$17,671,202	\$15,395,918
Total income	\$57,332,333	\$51,545,687
Less:		
All interest payments	\$321,678	\$284,486
Addition to general reserve	2,856,948	2,461,712
	\$3,178,627	\$2,746,198

Profit available for dividends	\$54,153,806	\$48,799,489
Less: 6% cash dividends on special stock	2,574,655	2,574,447

Profit available for dividends on common stock	\$51,579,151	\$46,225,042
Less:		
Regular cash dividends on common stock	28,843,769	27,040,881

Regular cash dividends on common stock	28,843,769	27,040,881
Extra cash dividends on common stock	14,421,887	7,210,893

Surplus for the year	\$8,313,495	\$11,973,268
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Inland Steel Company

The annual report for the year ending December 31, 1928, shows net profits of \$9,334,297 as compared with \$6,806,894 for the previous year, after interest, taxes, depreciation and contributions to the employees' fund. This is equivalent, after preferred dividends, to \$7.77 a share on the 1,200,000 shares of no par value common stock outstanding, as compared with \$5.16 a share in 1927. The amount carried to surplus was \$6,170,380 as compared with \$3,149,897 in the previous year. The consolidated income and surplus account for the year ending December 31, 1928, follows:

	1928	1927
Gross Income	\$64,310,444	.....
Cost of sales, including selling, general and administrative expenses	50,150,863	.....
Net earnings after deducting all expenses incident to operations, including charges for repairs and maintenance	\$14,159,581	\$10,966,861
Other Income (Interest received)	592,346	375,193
	\$14,751,927	\$11,342,054
Less:		
Provision for depreciation of plants	\$ 2,593,992	\$ 2,435,669
Provision for exhaustion of minerals	88,888	72,582
Bond interest	1,234,750	674,908
Estimated federal taxes	1,060,000	994,000
	\$ 4,977,630	\$ 4,179,159
	\$ 9,774,297	\$ 7,162,895

Deduct:		
Contributions to employees' savings and profit sharing pension fund	440,000	358,000
Net Profit for year	\$ 9,334,297	\$ 6,804,895
Deduct:		
Regular dividends paid:		
On preferred stock	\$ 175,000	\$ 700,000
On common stock	2,988,917	2,956,997
	\$ 3,163,917	\$ 3,656,997
Surplus income for year	\$ 6,170,380	\$ 3,147,898
Add balance of surplus, end of previous year	25,269,632	22,119,735
	\$31,440,012	\$25,267,633
Deduct:		
Extra cash dividend on common stock	\$ 5,261,083	.....
Premium paid on preferred stock retired	1,500,000	.....
Premium paid on debenture bonds retired	420,000	.....
Unamortized discount and expense on bonds retired	557,596	.....
	\$ 7,738,679	.....
Surplus December 31, 1928, as per balance sheet	\$23,701,333	\$25,267,633

Westinghouse Electric & Manufacturing Company

Net income of \$16,695,706 was reported by the Westinghouse Electric & Manufacturing Company for the nine months ended December 31, 1928. This report is the first since the company's fiscal year was changed to conform to the calendar year. It had formerly ended on March 31 and thus, with the preceding report covering operations up to March 31, 1928, only the remaining three-fourths of the past year are under review in the current statement.

This foregoing nine months income, however, is in excess of the \$15,639,172 reported as net income for the full year ending March 31, 1928. For comparison the net income for the calendar year 1928, including the net income for the first quarter already included in the \$15,639,172, is reported as \$20,814,940. Furthermore the \$16,695,706 net income for the last three-fourths of 1928 is in excess of any full year's net income since 1924 and compares with a figure of \$16,138,441 for the year ending March 31, 1927 and with \$14,122,001 for the year ending March 31, 1926.

The gross sales for the nine months amounted to \$144,432,879 as against \$175,456,815 for the full year ending March 31, 1928. Sales during the calendar year 1928 totaled \$189,050,302. The nine months' expenses were \$129,906,981 leaving a manufacturing profit of \$14,525,899. Other income amounted to \$3,309,190 while \$1,139,383 in interest charges were deducted.

Dividends of \$239,922 were paid on preferred stock while \$6,867,239 were paid on the common shares. There remained \$9,588,545 as a surplus for the nine months and this with other adjustments brought the total surplus as of December 31, 1928, to \$67,089,245.

The report states that the value of unfilled orders received during the nine months period exceeded by almost \$20,000,000 the value of orders received during the nine months ended December 31, 1927.

The consolidated income and surplus account for the nine months follows:

NINE MONTHS ENDED DECEMBER 31, 1928		
Gross Earnings:		
Sales Billed	.....	\$144,432,879
Cost of Sales:		
Manufacturing Cost, including depreciation of Property and Plant; all Distribution, Administration and General Expenses; and provisions for Taxes and Reserves	.....	129,906,981
Net Manufacturing Profit		\$14,525,899
Other Income:		
Interest, Discount and Miscellaneous Income	.....	\$2,260,477
Dividends and Interest on Investments	1,048,712	3,309,190
Gross Income from all Sources	.....	\$17,835,088
Deductions from Income:		
Interest Charges	.....	1,139,383
Net Income for the Nine Months	.....	\$16,695,706
Dividends at the Rate of 8% Per Annum:		
On Preferred Stock	.....	\$ 239,922

On Common Stock...	6,867,239	\$ 7,107,161
Surplus for the Nine Months...	\$ 9,588,545	
Surplus, March 31, 1928	56,932,198	
Gross Surplus	\$66,520,743	
Adjustments:		
Remainder of \$4,000,000 previously appropriated for Federal Income Taxes, not required	\$1,000,000	
Less:		
Adjustments of Book Values of Investments in Affiliated Companies	\$348,464	
Miscellaneous, net	83,034	431,498
Surplus, December 31, 1928, per Balance Sheet	\$67,089,245	568,502

Pullman Incorporated

The annual report for the year ending December 31, 1928 shows total earnings from all sources of \$18,397,876, or \$16,396,696 after deducting a reserve for federal income taxes amounting to \$2,001,180. Dividends paid by Pullman Incorporated amounted to \$13,471,018 and the proportion of dividends the subsidiary, the Pullman Company, paid to minority stockholders totaled \$21,366. The balance to

Pullman Incorporated	\$13,471,018	\$3,351,042
By Pullman Company		2,699,794
Proportion of dividends of subsidiary, the Pullman Company, paid to minority stockholders	21,366	19,109
	\$13,492,384	\$6,069,945
Balance to surplus	\$2,904,312	\$6,222,301

The statement of Edward F. Carry, president, to stockholders, in part, follows:

Railroad purchases of freight car equipment in 1928 reached the low point since 1921 and more than half of these orders were placed so late in the year that they did not figure in 1928 shipments. The purchases of passenger equipment were somewhat larger than in 1927 but the combined volume of freight and passenger car business available for your principal manufacturing subsidiary, the Pullman Car & Manufacturing Corporation, was less than in any year since the separate incorporation of that company in 1924, and the earnings from that department of the business showed a decrease of about 43 per cent from the annual rate reported for the last previous fiscal period. Your manufacturing subsidiaries went into 1929 with heavier bookings and more business in prospect than at the beginning of 1928.

To serve railroads in the south which could not be reached effectively from your freight car building plants in the Chicago district, the Pullman Car & Manufacturing Corporation, acquired, in December, 1928, the freight car manufacturing business and equipment of the Tennessee Coal, Iron & Railroad Co. at Birmingham, Ala. Operation of this equipment will be continued in the

Construction

ATCHISON, TOPEKA & SANTA FE (Coast Lines).—Bids will close on April 1 for the construction of a passenger station and "Harvey House" at Winslow, Ariz. It is also planned to construct during 1929 a 110-ft. drawbridge over the San Joaquin river near Stockton, Cal. The substructure for this bridge will be constructed by the caisson method.

ATCHISON, TOPEKA & SANTA FE (Eastern Lines).—A contract for the construction of the substructure, consisting of concrete piers on caissons, of a bridge over the North Canadian river at Oklahoma City, Okla., has been let to the Union Bridge Construction Company. The contract for the construction of a laundry building at Newton, Kan., has been awarded to the T. A. Allen Construction Company, Los Angeles, Cal. The same contractor has been given a contract by the Santa Fe for the construction of a reinforced concrete feed storage elevator at the stock yards at Emporia, Kan. A contract has been let to Joseph E. Nelson & Sons, Chicago, for the construction of fuel oil pipe lines and facilities for supplying locomotives at Emporia.

BANGOR & AROOSTOOK.—This company has awarded a contract to the Roberts & Schaefer Company, Chicago, for the construction of a re-inforced concrete coaling station at Derby, Me.

CANADIAN NATIONAL.—This company closed bids on March 22 for the construction of water stations at Dobson, Alta., and Scott, Sask., which will include the construction of dams, reservoirs and pipe lines.

CANADIAN PACIFIC (Western Lines).—This company has announced, as part of its general improvement program, the construction of buildings and other structures at various points on its lines in Manitoba, British Columbia, Ontario, Saskatchewan and Alberta in 1929. New stations will be constructed at Langenburg, Man., and LaSalle, Pleasantdale, Sask., Keppel, Burstall and Antelope, Hilda, Alta., Mazepa, Milk River and Bentley. An assistant superintendents house will be built at Wilkie, Sask., while roadmasters' houses will be built at Basano, Alta., and Empress and 13 section houses will be constructed at various points. It is planned to construct coaling stations at Strasbourg, Sask., and Irricana, Alta., and Consul and to install washout plants at Winnipeg, Man., and Sutherland, Sask., and a water treating plant for stationary boilers at Moose Jaw, Sask. Additional trackage will be constructed in the yards at Fort William, Ont., Transcona, Man., North Bend, B. C., Revelstoke and Coquitlam while 14 new passing tracks will be constructed and others extended. A fireproof pattern shop will be constructed at Weston, Ont.

CHESAPEAKE & OHIO.—This company has awarded five contracts for construc-

THE PULLMAN COMPANY TRAFFIC AND OPERATING STATISTICS Comparative Statement for Years Ended December 31					
Item	1924	1925	1926	1927	1928
Cars operated	7,600	8,238	8,639	8,689	8,631
Car miles	943,334,475	1,043,663,099	1,112,967,022	1,140,476,049	1,153,889,647
Revenue passengers:					
Berth	21,419,639	22,470,751	22,658,191	22,042,093	21,310,891
Seat	12,666,117	13,055,052	13,415,020	13,155,085	12,613,029
TOTAL	34,085,756	35,525,803	36,073,211	35,197,178	33,923,920
Revenue passenger miles	13,083,037,763	14,017,394,915	14,407,455,160	14,096,775,086	13,937,849,095
Revenue from cars	\$73,900,608	\$81,490,323	\$83,191,087	\$82,250,940	\$82,249,127
Expenses	\$66,388,393	\$68,967,083	\$73,638,331	\$71,891,743	\$71,311,068
Net revenue from cars	\$7,512,215	\$12,523,240	\$9,552,756	\$10,359,197	\$10,938,059
Traffic averages:					
Average revenue per car operated	\$9,724.40	\$9,891.52	\$9,629.94	\$9,466.64	\$9,529.50
Average revenue per passenger	\$2.17	\$2.29	\$2.31	\$2.34	\$2.42
Average net revenue per passenger	\$0.22	\$0.35	\$0.26	\$0.29	\$0.32
Average net revenue per car per day	\$2.70	\$4.16	\$3.03	\$3.27	\$3.46
Average mileage per car operated	124,131	126,683	128,834	131,263	133,691
Average journey per passenger (miles)	384	395	399	401	411
Average miles per car per day	339	347	353	360	365
Average loading per car (passengers)	13.87	13.43	12.95	12.36	12.08

surplus was \$2,904,312. The consolidated income account as of December 31, 1928, follows:

	1928	1927	8 Mo.
Earnings:			
From carrier business of the Pullman Company, after deducting all expenses incident to operations	\$22,477,890	\$15,915,003	
Less: Charges and allowances for depreciation	9,993,594	6,747,940	
	\$12,484,296	\$9,167,063	
From all manufacturing properties and Pullman Railroad, after deducting all expenses incident to operations	\$4,125,509	\$4,424,883	
Less: Charges and allowances for depreciation	1,201,664	778,228	
	\$2,923,845	\$3,646,655	
From investments, etc.	2,989,735	1,605,444	
Total earnings from all sources	\$18,397,876	\$14,419,162	
Less: Reserve for federal income tax	2,001,180	2,126,916	
Balance of earnings	\$16,396,696	\$12,292,246	
Dividends paid:			

present plant pending completion of a modern car-building plant, which is now being erected in the Birmingham district.

Balance sheet as of December 31, 1928, shows there were net working assets of \$72,645,392 as compared with \$66,475,432 at the end of the previous year, indicating that the necessary financing during the year incident to construction of new cars, installation of new laundry and shop equipment and initial plant expenditures at Birmingham, was accomplished without depletion of working capital. At the close of the year your companies held cash and government securities to the amount of \$60,177,479, equivalent to three times its current liabilities of \$20,254,196.

Comparison of traffic and operating statistics of your carrier subsidiary for the five years ended December 31, 1928, is afforded in the statement accompanying this report. Examination of these statistics shows that your carrier subsidiary continues to enjoy a stability of patronage, as evidenced by the fact that as compared with the five-year average, the 1928 figures disclose small but gratifying increases in revenue passenger miles, revenue from cars, and average journey per passenger. This indicates that the natural increase in long distance or Pullman travel more than offsets diversion of short haul travel to other means of transportation. The Pullman Company will continue the policy of making travel in Pullman cars increasingly attractive, and of providing equipment needed to take care of the normal increase in volume, as well as to protect peak periods of travel and to permit adequate shopping of cars.

tion work at various points on its lines to the Fairbanks, Morse & Company of Chicago, as follows: For a coaling station, sand handling facilities and cinder conveyors included in the engine terminal improvements at Fulton, near Richmond, Va.; for similar work both at Hinton, W. Va., and at Stevens, Ky.; for a coaling station and sand handling facilities included in engine terminal improvements at Cheviot, O.; and for sand handling facilities at Clifton Forge, Va. These contracts are a part of this road's improvement program amounting to \$18,500,000.

CHESAPEAKE & OHIO.—A contract has been let to Joseph E. Nelson & Sons, Chicago, for the construction of an addition to the roundhouse, a storehouse, a coaling station and various other terminal buildings at Fulton, (Richmond) Va.

CHICAGO & NORTH WESTERN.—Bids were closed on March 29 for the construction of an extension from Winner, S. D., to Wood, 34 miles. The contract, when let, will cover grading, bridging and track laying. The expenditure for the completed line, including all items of construction and the cost of rail, is estimated at \$1,250,000.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—A contract for the construction of yard office buildings and two car retarder operators' towers at Sharonville, Ohio, at an estimated cost of \$20,000 has been let to the J. B. Schmitt Company.

ERIE.—This road has awarded a contract to the Newhall Company, Cleveland, O., for the construction of a freight house and team track yard on its lines at Black Rock, N. Y., north of Buffalo.

IDAHO-WASHINGTON ROADS.—The Interstate Commerce Commission has made public a proposed report by Special Examiner J. L. Rogers recommending dismissal of complaints filed by the Clarkston Chamber of Commerce, the Lewiston Commercial Club and the Public Utilities Commission of Idaho which requested the commission to require the construction of a rail line extension from Lewiston, Idaho, to Homestead, Wash., 126 miles, or from Lewiston to Clarkston, Wash., on the ground that sufficient public convenience and necessity had not been shown to justify such an order. The railroads, opposing the complaints, estimated the cost of the proposed Lewiston-Homestead line, including the rehabilitation of existing lines necessary for the project, at \$29,590,000, and asserted that there is no public convenience and necessity to be served by the requested construction, that the expense involved is disproportionate to the benefits to be derived therefrom, and that there is no authority in law for the granting of the relief prayed for. After stating that the case had been built upon the basis of construction by the Oregon-Washington, the report says that while the record will not permit even an approximate estimate of the revenues or earnings which can reasonably be expected from the proposed Lewiston-Homestead line, the conclusion cannot be escaped that construction and operation of the line

would result in a large deficit. "This is true even after considering the proposed diversion of traffic from existing facilities which would still have to be maintained and operated. If a deficit did result from the operation and the present earnings of the carrier are to be maintained an increase in rates would seem inevitable. The O.-W. R. & N. must be largely supported by traffic originating and destined to Idaho, Oregon and Washington. It is very doubtful that the people of those states would favor the construction if it is not a sound economical proposition and if its construction and operation is liable to result in increased rates."

KANSAS CITY, MEXICO & ORIENT OF TEXAS.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from Alpine to Presidio, Tex., on the Rio Grande, 86 miles, which would connect the line in the United States with that of the company's Mexican subsidiary.

LOS ANGELES & SALT LAKE.—A contract for the construction of a commissary building at Cedar City, Utah, at a cost of about \$45,000 has been awarded to C. I. & R. Anderson, Salt Lake City, Utah.

MISSOURI-KANSAS-TEXAS.—A contract has been let to Gifford-Hill & Co., Inc., Dallas, Tex., for a reduction of the east-bound ruling grade on the Henrietta division, between St. Jo, Tex., and Nocona, 16 miles to a virtual 0.8 per cent maximum. The project involves the grading of 300,000 cu. yd. of earth, the placing of 1,350 cu. yd. of reinforced concrete and the relocation of 6.6 miles of main line and 1.5 miles of State Highway No. 5 in order to eliminate two grade crossings. The total cost of this work will be about \$420,000, with full completion scheduled for July 31. A contract has been awarded to the Bellows-Maclay Construction Company, Dallas, Tex., for improvement and enlargement of the locomotive terminal facilities at Fort Worth, Tex., at a cost of about \$450,000. This project includes the rearrangement and construction of approximately 3 miles of trackage and the installation of a 105-ft. continuous type turntable and the construction of the following buildings: Ten-stall brick and frame roundhouse, 120 ft. deep, with brick and steel machine shop, 50 ft. by 60 ft.; reinforced concrete and brick storehouse, 30 ft. by 87 ft., which includes concrete platforms, arch brick building, wood material bins and castings platforms; brick and frame enginemen's service building, 25 ft. by 56 ft.; brick and frame coach yard supply building, 20 ft. by 80 ft.; brick and frame toilet and locker building, 24 ft. by 55 ft.; brick and steel power house, 64 ft. by 40 ft. and 24 ft. by 16 ft.; lime and soda ash water treating plant, including brick and frame building 24 ft. by 34 ft.; steel blacksmith shop, 30 ft. by 40 ft., and a reinforced concrete locomotive inspection pit with wood frame cover, 42 ft. by 90 ft. It is expected that the work at Fort Worth will be completed by August 31.

NEW YORK CENTRAL.—The New York State Public Service Commission has affirmed its order of December 8 last, calling for the elimination of the grade crossing at Broadway, Kingston, N. Y., by depressing the street. Objection had been made by the city of Kingston and the county of Ulster, the objectors desiring that no action be taken, except on a plan for abolishing this and six other grade crossings, and the commission held a rehearing but did not alter its decision. The commission suggests that the city or county, if either or both would take the responsibility for allowing present conditions to continue, should appeal to the courts.

PENNSYLVANIA.—This company has recently awarded several contracts for construction work at different points on its lines. They are as follows: To the Vang Construction Company, Philadelphia, Pa., for the construction of an underground telephone and telegraph line to cost about \$200,000, between North Philadelphia station and Liddonfield in connection with electrification between Philadelphia and Trenton, N. J.; to T. J. Foley Company, Pittsburgh, Pa., for the extension of passing sidings from Smithville, O., to Orrville, O., to cost approximately \$70,000; to the same company for the construction of an interchange track between the St. Louis Connecting Railroad and the Illinois Terminal Company, east of Collinsville, Ill., at an expenditure of about \$70,000; to the Dunbar & Sullivan Company, Detroit, Mich., for dredging in the vicinity of Dock No. 9, Ashtabula, O., to cost about \$45,000.

SAN ANTONIO & ARANSAS PASS.—The Interstate Commerce Commission has modified its authority to this company to build a line from Falfurrias, Tex., to the Mexican frontier to eliminate 7.5 miles of the authorization between McAllen, Tex., and the international boundary. The line from Falfurrias to McAllen, 72.6 miles, has already been built.

SEWELL VALLEY.—This company has applied to the Interstate Commerce Commission for authority to construct an extension of 1.4 miles from Duo, W. Va.

TEMISKAMING & NORTHERN ONTARIO.—This company will spend approximately \$500,000 in improvements to the system. No new branch lines are contemplated in the expenditure but 20 miles of new steel will be laid in replacements, and new stations will be erected at Kirkland Lake and Englehart.

UNION PACIFIC.—A contract has been let by the City of Cheyenne (Wyo.) to Archie Allison, Cheyenne, for the construction of the substructure and concrete deck of a viaduct over the Union Pacific tracks at Central avenue in that city. The railroad will bear 50 per cent of the cost of this project.

THOMAS F. FARRELL.—New York state commissioner of canals, announces that the Erie, Oswego and Cayuga & Seneca canals will be opened for business on Friday, April 5, and that the Champlain canal will be opened on April 15.

Financial

BALTIMORE & OHIO.—*Acquisition of Western Maryland Stock.*—The Interstate Commerce Commission has authorized the Pittsburgh & West Virginia to intervene in the proceedings on the Clayton act complaint against the B. & O. on account of its acquisition of stock in the Western Maryland, on condition that it shall not be allowed to introduce evidence which will unduly broaden the issues raised by the complaint. The Chicago, Indianapolis & Louisville and the Chamber of Commerce of Newark, N. J., have been authorized by the commission to intervene in the proceedings on the application for approval of the proposed unification plan.

BOSTON & MAINE.—*Annual Report.*—The annual report of this company for 1928 shows net income after interest and other charges of \$6,437,471, as compared with net income in 1927 of \$3,373,293. Selected items from the income statement follow:

BOSTON & MAINE		
	1928	1927
Average mileage operated	.....	.....
RAILWAY OPERATING REVENUES	76,624,238	77,848,374
	—1,224,136	
Maintenance of way	12,486,921	13,288,333
Maintenance of equipment	13,405,796	14,889,500
Transportat'n	27,720,721	29,906,292
	—2,185,571	
TOTAL OPERATING EXPENSES	57,429,323	61,835,502
Operat'g ratio	74.95	79.43
	—4.48	
NET REVENUE FROM OPERATIONS	19,194,915	16,012,873
Railway tax accruals	3,946,294	3,572,869
	373,425	
Railway operating income	15,235,376	12,436,597
Equipment rents, Dr.	2,130,400	2,665,989
Joint facility rents, Dr.	302,008	269,836
	32,172	
NET RAILWAY OPERAT'G INCOME	12,802,969	9,500,773
Non-operating income	1,557,659	1,740,069
	—182,410	
GROSS INCOME	14,360,628	11,240,841
Rent for leased roads	1,139,132	1,139,132
Interest on funded debt*	6,341,826	6,452,452
	—110,626	
TOTAL DEDUCTIONS FROM GROSS INCOME	7,923,157	7,867,548
	55,609	
NET INCOME	6,437,471	3,373,293
Surplus for year carried to profit and loss	3,371,814	324,739
	3,047,075	

* Interest amounting to \$144,030 for 1928 and \$140,821 for 1927 accrued on bonds held in Sinking Fund is included in account "Income applied to Sinking Funds."

BURLINGTON SOUTH CHICAGO TERMINAL.—*Acquisition.*—The Interstate Commerce Commission has authorized the Chicago & Western Indiana to acquire the 9.3 miles of tracks and other real estate of this company in Cook County, Ill. Authority was, at the same time, granted to

the Belt Railway of Chicago to acquire this property under lease.

CHESAPEAKE & OHIO.—*Short Lines Approve Unification Plan.*—Approval of this company's application to the Interstate Commerce Commission for authority for a unification of the Van Sweringen and other lines in a proposed system is voiced by the American Short Line Railroad Association in a petition for authority to intervene in the proceedings. The petition points out that the C. & O. and the short lines have agreed upon a plan of procedure with respect to the connecting short lines and that the association believes that the C. & O. application, considered as a whole, presents for consideration and action the most constructive and practical plan yet proposed for executing the legislative mandate in section 5 of the interstate commerce act. If sustained by the commission, the petition says, this will establish a procedure that will make possible the lawful grouping or unification of carriers and will simplify the duties of the commission in the ultimate adoption of a consolidation plan. The association also favors the idea of creating four systems in the East built around the Baltimore & Ohio, Chesapeake & Ohio, New York Central and Pennsylvania. The Commission has authorized the American Short Line Railroad Association to intervene.

CHICAGO, NORTH SHORE & MILWAUKEE.—*Stockholders' Committee Asks Rehearing.*—The executive committee representing the protective committee of stockholders of this company has filed with the Interstate Commerce Commission a petition for a reconsideration of the case in which Division 4 of the commission recently declined to decide as to whether it had jurisdiction over the issuance of securities by this company. Petitioners ask for a rehearing and/or reargument before the entire commission and that the commission pass upon the merits of the case, i.e., decide whether defendant is an excludable street, suburban, or interurban electric railway within the language and intent of section 20-a of the interstate commerce act, or whether it is a carrier subject to the jurisdiction of the commission under that section. Unless the commission does enunciate the principles deducible from the record in this case, it says, no such electric railway in the country, engaged in the general transportation of freight, can be certain that it is not subject to the jurisdiction of the commission in connection with the issuance of securities, except by submitting an application for approval of a particular issue.

CHICAGO & NORTHWESTERN.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority for the authentication and delivery of \$1,375,000 of general mortgage 4½ per cent bonds, to be held in the treasury subject to further order.

DENVER & RIO GRANDE WESTERN.—*Annual Report.*—The annual report of this company for 1928 shows net income after interest and other charges of \$2,485,592,

as compared with net income in 1927 of \$1,992,806. Selected items from the income statement follow:

	1928	1927	Increase or Decrease
Average mileage operated	2,558	2,553	5
RAILWAY OPERATING REVENUES	33,200,656	33,121,169	79,488
Maintenance of way	6,178,430	6,748,481	—570,051
Maintenance of equipment	6,164,141	6,106,950	57,191
Transportation	10,003,469	10,079,155	—75,686
TOTAL OPERATING EXPENSES	24,442,415	25,079,216	—636,801
Operat'g ratio	73.62	75.72	—2.10
NET REVENUE FROM OPERATIONS	8,758,241	8,041,953	716,288
Railway tax accruals	2,300,000	2,380,000	—80,000
Railway operating income	not shown		
Hire of equipment	320,269	409,279	89,011
Joint facility rents	318,630	326,897	—8,267
NET RAILWAY OPERATING INCOME	7,094,772	6,391,040	705,732
Non-operating income	220,127	81,217	138,911
GROSS INCOME	7,440,737	6,606,088	834,649
Available for interest and sinking funds*	7,314,899	6,472,257	842,643
NET INCOME	2,485,592	1,992,806	492,786

* Excludes interest on general mortgage \$1,490,400.

GREEN BAY & WESTERN.—*1928 Earnings.*—A preliminary statement of earnings for 1928 shows net income after interest and other charges of \$379,278, as compared with \$301,362 in 1927. Selected items from the income statement follow:

	1928	1927	Increase or Decrease
RAILWAY OPERATING REVENUES	1,797,564	1,579,393	218,171
Maintenance of way	303,029	307,523	—4,494
Maintenance of equipment	256,143	248,249	7,894
Transportation	670,940	582,611	88,329
TOTAL OPERATING EXPENSES	1,333,317	1,226,558	106,759
NET REVENUE FROM OPERATIONS	464,248	352,835	111,413
Miscellaneous Earnings, Rentals, etc.	87,850	91,089	—3,239
GROSS INCOME	552,097	443,924	108,173
Less tax, rents, etc.	172,819	142,562	30,257
NET INCOME	379,278	301,362	77,916

HOCKING VALLEY.—*Annual Report.*—The annual report for 1928 shows net income after interest and other charges of \$4,635,694, as compared with net income in 1927 of \$3,751,393. Selected items from the income statement follow:

	1928	1927	Increase or Decrease
Average mileage operated	349	349	.....
RAILWAY OPERATING REVENUES	20,801,232	21,042,515	—241,284
Maintenance of way	2,306,644	2,430,765	—124,121
Maintenance of equipment	3,844,061	4,419,476	—575,415
Transportation	5,784,419	5,928,171	—143,751

(Continued on page 765)

Annual Report

Canadian Pacific Railway Company

Forty-Eighth Annual Report

OF THE DIRECTORS OF THE CANADIAN PACIFIC RAILWAY COMPANY. YEAR ENDED DECEMBER 31, 1928.

To the Shareholders:

The accounts of the Company for the year ended December 31, 1928, show the following results:—

Gross Earnings	\$229,039,296.95
Working Expenses (including all taxes)	177,344,845.26
Net Earnings	\$ 51,694,451.69
Special Income	12,677,683.78
Deduct Fixed Charges	\$ 64,372,135.47
Surplus	15,308,698.28
Contribution to Pension Fund	\$ 49,063,437.19
	750,000.00
	\$ 48,313,437.19

From this there has been charged a half-yearly dividend on Preference Stock of 2 per cent., paid October 1, 1928,	\$ 2,902,971.76
And three quarterly dividends on Ordinary Stock of 2½ per cent. each, paid June 30, 1928, October 1, 1928, and December 31, 1928	21,972,455.00
	23,975,426.76
	\$ 24,338,010.43

From this there has been declared a second half-yearly dividend on Preference Stock of 2 per cent., payable April 1, 1929,	\$ 2,064,575.63
And a fourth quarterly dividend on Ordinary Stock of 2½ per cent., payable April 1, 1929	7,381,177.50
	9,445,733.15
	\$ 14,892,257.28

Leaving net surplus for the year	\$ 14,892,257.28
Special Income for Year Ended December 31, 1928	
Net Revenue from Investments and Available Resources, Exhibit "C"	\$ 3,262,525.00
Interest on Deposits, and Interest and Dividends on Other Securities	3,231,319.73
Net Earnings Ocean and Coastal Steamship Lines	2,257,546.05
Net Earnings Commercial Telegraph and News Departments, Hotels, Rentals and Miscellaneous	3,926,293.00
	\$ 12,677,683.78

Earnings and Expenses

The working expenses for the year, including all taxes, amounted to 77.43 per cent. of the gross earnings, and the net earnings to 22.57 per cent., as compared with 80.36 per cent. and 19.64 per cent. respectively in 1927. Excluding taxes, the ratio of working expenses to gross earnings was 74.79 per cent. and in 1927, 77.87 per cent.

The gross earnings from railway operations increased \$27,893,545 over those of the previous year, and the working expenses increased \$15,714,665. The net earnings, exclusive of Special Income, were \$51,694,451, an increase over the previous year of \$12,178,880.

These results may be considered eminently satisfactory, the net earnings being greater than in any year in the Company's history.

The increase in gross earnings is due to the large crop handled under favourable harvesting conditions and to the improvement in general business throughout the country.

Expenditures for Maintenance of Way Structures and Equipment during the year were adequate for the upkeep of the property, which is in good condition throughout.

Special Income

The Special Income of the Company shows an increase over that of the previous year of \$801,124, due principally to larger net earnings from Commercial Telegraphs, Hotels, etc., and to greater interest obtained on deposits and from investments. There was a decrease in the net earnings from Ocean and Coastal steamship lines of \$184,583, due entirely to diminished passenger and freight earnings on the Pacific.

Land Sales

The sales of agricultural lands for the year were 664,411 acres for \$7,743,847.18, being an average of \$11.66 per acre. Included in this area were 25,859 acres of irrigated land which brought \$43.74 per acre, so that the average for the balance was \$10.36 per acre.

Issue of Stocks

During the year your Directors sold in London £1,500,000, and in New York \$5,000,000, of Four Per Cent. Consolidated Debenture Stock, the issuance of which you had authorized, and in London £1,000,000 of Four Per Cent. Preference Stock, the proceeds being used to meet capital expenditures previously sanctioned by you.

Also during the year the 18,710 shares of Common Stock, referred to in the report of 1927, were disposed of at favourable prices.

Hotels

Your Directors have decided upon extensions to the Empress Hotel at Victoria and the Palliser Hotel at Calgary in order to provide facilities necessary to take care of the increasing business in these two cities, particularly, in the case of the Empress Hotel, of the rapidly growing tourist and winter business. They have, therefore, authorized additions to these hotels at an estimated cost of \$2,875,000 for the Empress Hotel and \$1,930,000 for the Palliser. Your approval of these expenditures will be asked.

In view of the large additions to the Atlantic fleet which you have approved and because of the increasing number of Canadians who visit England every year, your Directors have also decided that it would be in the interests of the Company's traffic to erect a modern hotel in London, England. Some difficulty has been met with in securing a proper site, but, provided the requisite land can be secured in a desirable location, it is expected that the work of construction can be commenced in 1930. Your authority to proceed with the work when conditions warrant and to incur the necessary expenditure will be required.

Construction and equipment of the Royal York Hotel at Toronto are rapidly approaching completion and it is expected that it will be opened in June.

B. C. Coast Service

In order to take care of the increasing traffic between Vancouver and Victoria, your Directors have authorized the construction of two first class steel quadruple expansion twin screw oil-burning passenger and cargo steamships, each 351 feet in length, 52 feet in breadth and with a speed of 16½ knots, giving sleeping accommodation for 435 passengers, day accommodation for 1,500 passengers, also accommodation for 50 automobiles and approximately 1,000 tons of cargo, at a cost of £210,000 each, to be delivered in March and April, 1930, respectively.

You will be asked to approve this action of the Directors and to authorize the issuance of Consolidated Debenture Stock to defray the cost of the vessels.

Canadian Pacific Steamships Limited

In accordance with the policy of disposing of vessels which are considered to be unsuitable for present-day traffic requirements or uneconomical to operate, the following vessels have been sold: "Balfour," "Berwyn," "Bosworth," "Brandon," "Brecon," "Marburn," "Montreal."

During the year, the "Duchess of Bedford" and the "Duchess of Atholl" and five new freighters of the "Beaver" class were put in commission. Since the end of the year, the "Duchess of Richmond" has been delivered and the "Duchess of York" is expected to be in service during the present month.

The double reduction gearing installed in vessels built in 1921 and 1922 has not only been costly to maintain but for some time has been a source of anxiety to our steamship officers, and it has been therefore decided to re-engine the "Empress of Canada," the "Montcalm" and the "Montclare" with improved turbine machinery of single reduction gear type. It is anticipated that the economy in fuel consumption alone will justify these alterations, and in addition the vessels will have better and more efficient propulsive power.

In pursuance of your authority, given at the last Annual Meeting, contracts have been entered into for the construction of two additional steamships, one for the Pacific service, to be known as the "Empress of Japan," and the other for the Atlantic service, to be known as the "Empress of Britain."

The "Empress of Japan" will be a first class steel twin screw geared turbine oil-burning, 21-knot passenger and cargo steamer, 662 feet in length and 83 feet 6 inches in breadth, and the contract calls for its delivery not later than May, 1930. Its cost will be £1,270,000.

The "Empress of Britain" is to be a first class quadruple screw geared turbine oil-burning passenger and cargo steamer of 755 feet length and 97 feet 6 inches breadth, with a speed of 24 knots. Its cost will be £2,100,000 and the builders have contracted to deliver it not later than May, 1931.

Branch Lines

The construction of new branch lines in Western Canada previously authorized by the shareholders was proceeded with, 352 miles being graded, 343 miles of track being laid, and 270 miles ballasted on these new lines.

Your Directors have given consideration to the necessity of providing extensions in various parts of the Dominion to serve the mining and agricultural activities which form such an important phase of the country's development, having regard particularly to the extensive operations that are likely to take place in Northern Saskatchewan and Northern Alberta and also to the settlement possibilities due to the excellent character of the land, and in pursuance of this policy have applied to Parliament for authority to construct the following branch lines having an aggregate mileage of approximately 1200 miles:—

1. From a point on the Lac du Bonnet Branch in Eastern Manitoba, northerly and easterly to a point on the Eastern boundary of that Province.
2. From Bredenbury to Esterhazy, in the Province of Manitoba.
3. From Nipawin northerly to Island Falls on the Churchill River, in the Province of Saskatchewan.
4. From Gronlid on the Lanigan Northeasterly Branch, to Pontrilas on the Tuffnell-Prince Albert Branch, in the Province of Saskatchewan.
5. From Lanigan to Prince Albert, in the Province of Saskatchewan.
6. From Prince Albert northerly to Foster Lakes, in the Province of Saskatchewan.
7. From Prince Albert northwesterly to Lac la Biche on the Alberta and Great Waterways Railway, in the Province of Alberta.
8. From Sonningdale through North Battleford to Meadow Lake, in the Province of Saskatchewan.
9. From Hazeldine to a junction with the Las la Biche line near Cold Lake, in the Province of Alberta.
10. From Crossfield on the Calgary and Edmonton Railway westerly and northerly about 70 miles, in the Province of Alberta.
11. From Trail easterly and southerly to the international boundary at the crossing of the Pend d'Oreille River, in the Province of British Columbia.
12. From Kootenay Landing to Procter, in the Province of British Columbia.
13. From a point on the Stobie Branch to the Falconbridge Mining Area in the District of Sudbury, Province of Ontario.

In connection with the Western Lines involved in this application to Parliament, negotiations have taken place with the Canadian National Railway Company, which is also making application to Parliament at the present Session for the necessary authority to enable it to construct certain lines which would parallel portions of the lines applied for by your Company, with the result that understandings have been arrived at which will avoid duplication of lines through the territories affected.

Your approval will be asked for proceeding with the construction of the undermentioned portions of the said branch lines and extensions, as conditions warrant, and for the issue and sale of a sufficient amount of Consolidated Debenture Stock to meet the expenditure therefor:—

Lanigan-Prince Albert	110 miles
Prince Albert-Lac la Biche	50 miles
Gronlid-Pontrilas	20 miles
Trail easterly and southerly	16 miles
Kootenay Landing-Procter	33 miles
Stobie-Falconbridge	12 miles

In addition to the above mentioned lines, your Directors are of the opinion that further extensions should be built, as conditions warrant, in respect of the following lines, for which parliamentary sanction has already been received:—

Acme Northwesterly	25.0 miles
Archive-Wymark; Lake Johnston to Archive	27.0 miles
Swift Current Northwesterly; Willingdon to Vegerville	25.0 miles
Bromhead Westerly, Miteage 20 to 44	24.0 miles
Suffield Southwesterly; Arrowhead to Blackie	26.0 miles

Your approval will also be asked for proceeding with the construction of the last mentioned extensions and for the issue

and sale of a sufficient amount of Consolidated Debenture Stock to meet the expenditure therefor.

It is also proposed to extend, as conditions warrant, the Tuffnell-Prince Albert Branch of the Manitoba & North Western Railway from Nipawin to Prince Albert, a distance of 97 miles. The Manitoba & North Western Railway Company has authority to issue bonds not exceeding \$40,000 per mile in respect of this Branch, which bonds will, in the usual course, be acquired by the Company with the proceeds of the sale of Consolidated Debenture Stock to be issued for the purpose.

Alberta Railways

Subject to the necessary statutory authority and to your approval, your Directors have agreed to purchase jointly with the Canadian National Railways the railways and undertakings of the Edmonton, Dunvegan and British Columbia Railway Company, the Central Canada Railway Company, the Central Canada Express Company, the Alberta and Great Waterways Railway Company and the Pembina Valley Railway, all of which are presently owned and operated by the Province of Alberta. The purchase price is to be \$15,580,000, payable in instalments as follows: \$5,000,000 on delivery of possession, \$5,000,000 on June 1, 1933, and \$5,580,000 on June 1, 1939, with interest on the deferred instalments at four per cent. per annum. In addition, the purchasers are to pay and indemnify the Province against liability on the funded debt of the Edmonton, Dunvegan and British Columbia Railway Company comprising \$7,000,000 First Mortgage Four Per Cent. Debenture Stock due February 16, 1942, and \$2,420,000 First Mortgage Four and One-half Per Cent. Gold Bonds due October 22, 1944. The purchasers are also to complete the construction of the extensions of the Edmonton, Dunvegan and British Columbia Railway from Wembley to Hythe, about twenty-five miles, and the Central Canada Railway from Whitelaw to the Water Hole District, about fifteen miles, and to pay to the Province the amount expended by the Province in such construction, and within five years construct and put into operation not less than sixty miles of additional branch lines and extensions.

The proposed Agreement will be submitted for your approval, and your authority for the issue of Consolidated Debenture Stock to aid in financing the transaction will be asked.

Minneapolis, St. Paul and Sault Ste. Marie Railway Company

The fair grain crops of 1928 and improving business conditions throughout the Northwestern States resulted in the largest gross earnings in the history of your subsidiary, the Soo Line, and notwithstanding the heavy maintenance expenses and increasing labour costs, the net income of that Company was reasonably satisfactory. For the past five years the Directors of the Soo Line have carried out an extensive programme of improvements for the purpose of enabling the property to be more economically operated and they feel that considerable progress has been made in that direction. The intensive programme for diversification in agriculture which has been carried on in recent years is bringing good results, and business conditions in the Northwest are now more stable and agriculture is gradually righting itself through less dependence on the raising of grain.

New Equipment

Your Directors are making provision, with your approval, to obtain the following necessary equipment at a total estimated cost of \$41,363,791.

PASSENGER CARS	6 Ore Cars
29 8-Section Sleeping Cars	300 Flat Cars
11 Buffet Parlor Cars	300 Coal Cars
10 Special Baggage Cars	5 Special depressed centre flat cars
6 Mail and Express Cars—60-ft. mail compartment	325 Hart Convertible Ballast Cars
5 Mail and Express Cars—30 ft. mail compartment	25 Magor type Air Dump Cars
6 Standard 79 ft. Baggage Cars	40 29 ft. Conductors' Vans
2 Cafe Parlor Cars	7 Snow Plows—6 single and 1 double track
15 First Class Coaches	2 Rail Hoists—2,500 lbs. capacity
15 Dining Cars	2 Self-propelling Pile Drivers
2 Overnight Single Bed Sleeping Cars	2 200 Ton Cranes
15 Lounge Observation Cars	3 100,000 lbs. Capacity Jordan Spreaders
3 General Superintendents' Cars	1 Composite Jordan Spreader and Ditcher
FREIGHT CARS	1 Brownhoist combined Steam Crane and Pile Driver
200 Stone Cars—nominal capacity 64 tons	LOCOMOTIVES
7,500 Steel Sheathed Box Cars—60 tons capacity	20 T-1, 2-10-4 class oil burning—two equipped with boosters.
250 Freight Refrigerators	
200 Steel Sheathed Automobile Cars	
50 Express Refrigerator Cars	

Capital Expenditures

In anticipation of your confirmation, your Directors authorized capital appropriations, in addition to those approved at the last Annual Meeting, aggregating for the year 1928, \$4,761,502, and ask your approval of expenditures on capital account during

CANADIAN PACIFIC RAILWAY COMPANY
GENERAL BALANCE SHEET, DECEMBER 31, 1928

ASSETS	LIABILITIES
PROPERTY INVESTMENT:	
Railway, Rolling Stock Equipment and Lake and River Steamers.....	\$ 723,412,975.91
OCEAN AND COASTAL STEAMSHIPS, Exhibit "A".....	86,307,106.12
ACQUIRED SECURITIES: (Cost): Exhibit "B".....	148,132,386.78
ADVANCES TO CONTROLLED PROPERTIES AND INSURANCE PREMIUMS	13,152,388.77
INVESTMENTS AND AVAILABLE RESOURCES:	
Deferred Payments on Lands and Townsites	\$57,023,582.79
Provincial and Municipal Securities.....	792,721.29
Miscellaneous Investments, Exhibit "C," Cost	26,854,153.22
Assets in Lands and Properties, Exhibit "D"	75,626,193.30
WORKING ASSETS:	
Material and Supplies on Hand.....	\$23,605,836.98
Agents' and Conductors' Balances.....	6,482,070.37
Net Traffic Balances	885,505.00
Imperial, Dominion and United States Governments, Accounts due for Transportation, etc.....	1,142,061.80
Miscellaneous Accounts Receivable.....	9,575,474.91
Cash in Hand	52,082,557.29
	93,773,506.35
	\$1,225,075,014.53
 the present year of \$14,631,072. Of this amount the principal items are:—	
Replacement and enlargement of structures in permanent form	\$1,260,870
Additional stations, round houses, freight sheds and shops, and extensions to existing buildings	1,809,652
Tie plates, rail anchors, ballasting, ditching and miscellaneous roadway betterments	1,350,838
Replacement of rail in main and branch line tracks with heavier section	1,524,549
Installation of Automatic Signals	1,904,000
Additional terminal and side track accommodation	1,633,854
Improving coaling and watering facilities	237,575
Mechanical Department, machinery at various points	702,710
Improvements in connection with Telegraph Service	945,822
British Columbia Coast Steamships	38,700
Algonquin Hotel	97,000
Hotel Saskatchewan	153,989
Terminal Improvements, Montreal	888,775
The balance of the amount is required for miscellaneous works to improve facilities and effect economies over the whole System.	
Stock Holdings	
The holdings of the Common and Preference Stocks of the Company at December 31, 1928, were distributed as follows:—	
	Com. & Pref.
Common	Common
United Kingdom	42.94%
Canada	17.50%
United States	33.06%
Other Countries	6.50%
Preference	Preference
	57.75%
	.30%
	.71%
	.62%
	24.42%
	4.93%
Changes in Directorate	
During the year the Directors received with regret the resignation of Mr. J. K. L. Ross, who had been a member of the Board since 1914. The vacancy thus created has been filled by the appointment of Sir Charles Gordon, G.B.E.	
It is also with deep regret that the Directors have to report that since the close of the year the Company has suffered a severe loss in the deaths of Mr. F. W. Molson and Sir Vincent	
	55,578
rents, net..	1,032,862
Joint facility rents, net..	61,374
	7,525
	53,849
NET RAILWAY OPERAT'G INCOME	5,624,746
Non-operating income	218,988
	243,770
	24,782
GROSS INCOME.	5,843,734
TOTAL DEDUCTIONS FROM GROSS INCOME.	1,202,263
NET INCOME...	4,635,694
	3,751,393
	884,301

E. E. LLOYD, Comptroller.

Meredith, Bart. Mr. Molson had been a Director since 1923 and Sir Vincent Meredith since 1916, and both were members of the Executive Committee.

The vacancy in the Executive Committee of the Board created by the death of Mr. Molson has been filled by the election of the Honourable F. L. Beique, K.C., to that Committee.

Retiring Directors

The undermentioned Directors will retire from office at the approaching Annual Meeting. They are eligible for re-election:—

MR. EDWARD W. BEATTY
 MR. W. A. BLACK
 HON. F. L. BEIQUE, K.C.
 RT. HON. LORD SHAUGHNESSY, K.C.

For the Directors,

E. W. BEATTY, President.

Montreal, March 11, 1929.

[ADVERTISEMENT]

Financial

(Continued from page 762)

TOTAL OPERATING EXPENSES			12,677,629	13,508,216	—830,587
Operat'g ratio	60.9	64.2			3.3
NET REVENUE FROM OPERATIONS	8,123,603	7,534,300		589,303	
Railway tax accruals	1,525,779	1,521,865		3,913	
Railway operating income	6,596,233	6,011,680		584,553	

rents, net..	1,032,862	1,088,439	55,578
Joint facility rents, net..	61,374	7,525	53,849
NET RAILWAY OPERAT'G INCOME	5,624,746	4,930,766	693,980
Non-operating income	218,988	243,770	24,782
GROSS INCOME.	5,843,734	5,174,536	669,198
TOTAL DEDUCTIONS FROM GROSS INCOME.	1,202,263	1,417,941	215,678
NET INCOME...	4,635,694	3,751,393	884,301

KANSAS CITY SOUTHERN.—Hearings in Anti-Trust Case Postponed.—The Interstate Commerce Commission has again postponed the date of the hearing on its complaints against the Kansas City Southern and the Missouri-Kansas-Texas for alleged violation of the Clayton anti-trust law. The Kansas City Southern case is now assigned for hearing on April 22 and the similar case against the Missouri-Kansas-Texas on May 6, both before Director Mahaffie of the commission's

Bureau of Finance. The commission also made public a motion filed by the Waco, Beaumont, Trinity & Sabine asking the commission to re-consolidate the two proceedings and handle them upon a single record, asserting that the particular question raised as to the K. C. S. relates to the present ownership and control of the M-K-T and that facts in this connection are, or should be, reflected by the records of the M-K-T rather than by those of the K. C. S.

LOS ANGELES & SALT LAKE—Abandonment.—The Interstate Commerce Commission has authorized this road to abandon 1.4 miles of its Pasadena branch.

MAIN CENTRAL—Annual Report.—The annual report of this company for 1928 shows net income after interest and other charges of \$788,431, as compared with net income in 1927 of \$551,025. Selected items from the income statement follow:

	1928	1927	Increase or Decrease
Average mileage operated	1,122	1,121	
RAILWAY OPERATING REVENUES	19,301,899	20,217,533	-915,636
Maintenance of way	2,911,110	3,252,533	-341,423
Maintenance of equipment	3,712,820	3,837,605	-124,785
Transportation	7,520,461	8,121,176	-600,715
TOTAL OPERATING EXPENSES	14,986,283	16,073,451	-1,087,168
Operat'g ratio	77.64	79.50	-1.86
NET REVENUE FROM OPERATIONS	4,315,616	4,144,084	171,532
Railway tax accruals	1,335,985	1,373,275	-37,290
Railway operating income	2,977,331	2,769,588	207,743
Equipment rents—net	39,418	29,907	9,511
Joint facility rents—Dr.	312,421	287,027	25,394
NET RAILWAY OPERATING INCOME	2,704,327	2,452,653	251,674
Non-operating income	478,929	501,158	-22,229
GROSS INCOME	3,456,260	3,270,746	185,514
Rent for leased roads	822,893	823,427	-533
Interest on funded debt	1,222,077	1,246,284	14,208
TOTAL DEDUCTIONS FROM GROSS INCOME	2,667,829	2,719,721	51,892
NET INCOME	788,431	551,025	237,406
Disposition of net income:			
Dividends on preferred stock	150,000	150,000	
Surplus for year carried to profit and loss	638,431	401,025	237,406

MISSISSIPPI CENTRAL—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a portion of the 12 mile line, owned by a lumber company, which it operates between Hattiesburg, Miss., and Tallahala.

MISSOURI-KANSAS-TEXAS—1928 Earnings.—The preliminary annual report of this company for 1928 shows net income of \$7,496,263 after interest and other charges, as compared with \$5,994,810 in 1927. Selected items from the income statement follow:

	1928	1927	Increase or Decrease
Average mileage operated	3,189	3,189	
RAILWAY OPERATING REVENUES	56,549,118	56,181,528	367,590
Maintenance of way and structures	7,861,520	8,240,609	-379,089
Maintenance of equipment	10,143,558	10,398,911	-255,353
Transportation	16,920,529	17,271,332	-350,803
TOTAL OPERATING EXPENSES	38,933,816	39,339,174	-405,358
NET REVENUE FROM OPERATIONS	17,615,302	16,842,354	772,948
NET RAILWAY OPERATING INCOME	12,204,471	11,699,973	504,498
Non-operating income	938,765	913,807	24,958
GROSS INCOME	13,143,236	12,613,780	529,456
NET INCOME	7,496,263	5,994,810	1,501,453

MISSOURI PACIFIC—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon 6.3 miles of line between a point 3 miles east of Lake Village, Ark., to Luna Landing.

MISSOURI PACIFIC—Equipment Trust.—This company has filed with the Interstate Commerce Commission a supplemental application for authority for an issue of \$8,925,000 of equipment trust certificates, instead of \$7,185,000 as asked in the original application.

MONTOUR—Construction and Trackage Rights.—The Interstate Commerce Commission has authorized this company to construct 2.2 miles of line in Allegheny County, Pa., to establish a connection with the Baltimore & Ohio, and to operate under a joint trackage agreement over 0.8 miles of the Peter's branch of the Pennsylvania in Allegheny County.

PACIFIC COAST—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a half-mile connecting track laid along the right of way of the Southern Pacific at Guadalupe, Cal.

PANHANDLE & SANTA FE—Lease.—This company has applied to the Interstate Commerce Commission for authority to acquire control by lease of the property of the Kansas City, Mexico & Orient of Texas, including a proposed extension from San Angelo to Sonora, Tex., and also to operate for account of the Atchison, Topeka & Santa Fe the line of the K. C. M. & O., from the Texas-Oklahoma line to Altus, Okl., 13 miles.

PITTSBURGH, LISBON & WESTERN—Construction.—The Interstate Commerce Commission, on rehearing, has denied the application of this company for authority to construct branch lines connecting the Youngstown, O., with the Ohio river waterways, upon the announcement of the Pennsylvania and the Pittsburgh & Lake Erie of their willingness to build facilities for this service.

READING—Lease of Mt. Carmel.—The Interstate Commerce Commission has authorized this company to lease the Mount

Carmel Railroad, 5.86 miles, in Northumberland County, Pa. A similar application, which however, provided for a higher rental, was disapproved some weeks ago.

SOUTHERN PACIFIC—Bonds.—Authority for the issuance and sale of \$65,166,000 of 40-year 4½ per cent bonds and \$19,549,800 of common stock, or so much thereof as may be necessary under the rights to be given with the bonds, is asked in an application filed with the Interstate Commerce Commission. The bonds are to be redeemable at 105 on any semi-annual interest date to May 1, 1964, and to each \$1000 bond will be attached a warrant entitling the bearer to purchase at any time before May 1, 1934, three shares of common stock at \$145 a share. Holders of the common stock will be given the privilege of subscribing to the bonds at 94 and interest to the amount of 17½ per cent of their holdings. The issue has been underwritten by Kuhn, Loeb & Co., for a commission of 2½ per cent and it is planned to sell to the bankers at 94 so much of the proposed issue as may not be subscribed for. The proceeds are to be used to pay or redeem \$53,815,760 of 4 per cent 20-year convertible bonds and for the financial requirements of the system.

SOUTHERN PACIFIC—Control of Central California Traction Company.—This company has filed with the Interstate Commerce Commission a petition bringing before it a dispute with the Atchison, Topeka & Santa Fe and the Western Pacific relating to their joint control of the Central California Traction Company. The Southern Pacific in 1925 applied for authority to acquire control of the traction company by purchase of its stock but the commission imposed a condition that it should admit the Santa Fe or Western Pacific or both to joint participation. Each was allowed to acquire a third interest but at a meeting in February, the petition says, the four directors representing the Santa Fe and Western Pacific outvoted those representing the Southern Pacific and ordered the construction by the traction company of extensions of its tracks at Lodi, Calif., to serve various industries which it says are adequately served by the Southern Pacific and would simply duplicate its service. This, according to the petition, would result in the Western Pacific and Santa Fe using the carrier to the unfair disadvantage of one of the joint proprietors and would result in wrongful diversion of traffic from the Southern Pacific. The commission is asked to declare that the action proposed is a discrimination against the Southern Pacific and in contravention of its orders.

TEXAS & PACIFIC—Control of Texas Short Line.—The Interstate Commerce Commission has authorized this company to acquire control of the Texas Short Line by the purchase of its entire outstanding capital stock and bonds. The Short Line operates from a connection with the T. & P. at Grand Saline, Tex., to a connection with the Missouri-Kansas-Texas at Alba, 10 miles.

TEXAS & PACIFIC.—*Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority for an issue of \$2,685,000 of equipment trust certificates, to be sold under competitive bidding.

WESTERN MARYLAND.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a 1 mile line from Codorus, Pa., to Cold Spring.

Average Prices of Stocks and of Bonds

	Mar. 26	Last week	Last year
Average price of 20 representative railway stocks.	127.30	132.95	122.05
Average price of 20 representative railway bonds.	90.73	90.43	96.85

Dividends Declared

Midland Valley.—Common, \$1.25, payable April 15 to holders of record March 30.
Minneapolis, St. Paul & Sault Ste. Marie (Leased Lines).—2 per cent, payable April 1 to holders of record March 20.
Norfolk & Western.—Adjustment Preferred, \$1.00, quarterly, payable May 18 to holders of record April 30.
United New Jersey Railroad & Canal Co.—2½ per cent, quarterly, payable April 1 to holders of record March 21 to March 31.

THE CENTRAL VERMONT will on April 9 start the annual tour of the "Vermont Special" with a delegation of leading business and professional men and women of Vermont, headed by Governor John E. Weeks. The train will traverse the South and Middle West, as was done in 1926 and 1927. The tour will be spread over ten days and is to include stops at 20 cities.

The Central Vermont has been commissioned to manage the transportation and has prepared a 14-car train which includes five baggage cars that are filled with exhibits of Vermont's natural and manufactured products. The "Vermont Special" was omitted in 1928 because of the disastrous flood of the previous year, but Vermont has now "come back" and the carrying out of a 4000-mile excursion of this kind is deemed well worth while.

The train will start from Montpelier, the capital of the state and its route is over the Central Vermont; the Boston & Maine; the New Haven; the Pennsylvania; the Baltimore & Ohio; the Richmond, Fredericksburg & Potomac; the Seaboard Air Line; the Southern; the Georgia; the St. Louis-San Francisco; the Missouri Pacific; the Santa Fe; and the Rock Island, to Des Moines, Iowa. It will make its first stop at Newark, N. J., the following morning, April 10, from seven to eleven o'clock. Trenton, N. J.; Wilmington, Del.; and Baltimore, Md., will be visited the same day. The other cities to be visited are Washington, D. C.; Richmond, Va.; Raleigh, N. C.; Columbia, S. C.; Atlanta, Ga.; Birmingham, Ala.; Memphis, Tenn.; Little Rock, Ark.; Oklahoma City, Okla.; Wichita, Kan.; Topeka, Kan.; Kansas City, Kan.; Lincoln, Neb.; Omaha, Neb.; Des Moines, Ia.

Leaving Des Moines on April 18, the train will return direct to Vermont over the Burlington, the Canadian National, the Canadian Pacific and the Central Vermont.

Officers

Executive

W. R. Bennett, assistant chief engineer of the Wabash, with headquarters at St. Louis, Mo., has been promoted to assistant to the president, with headquarters at the same point.

Financial, Legal and Accounting

A. P. Tugwell, auditor, treasurer and car accountant of the Tremont & Gulf, with headquarters at Winnfield, La., resigned on March 15 to become auditor for the Louisiana Highway Commission at Baton Rouge, La.

William T. Faricy, who has been promoted to general solicitor of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, Minn., has been connected with that railway and the Chicago & North Western for six years.



William T. Faricy

He was born in St. Paul in 1893 and attended St. Thomas College and the St. Paul College of Law, graduating from the latter institution in 1914. Mr. Faricy was admitted to the bar in Minnesota in 1914 and then began the practice of law in St. Paul. During the World War he served for two years overseas as a captain of infantry in the Eighty-eighth division, then being appointed general attorney of the Omaha, with headquarters at St. Paul, in 1920. In 1924 he became commerce attorney of the North Western, with headquarters at Chicago, where he remained until 1925 when he was appointed general attorney for the Eric V. Hauser interests on the Pacific Coast. He returned to railway service in 1927 as general attorney of the Omaha at St. Paul, his promotion to general solicitor becoming effective March 1.

William F. Brunner, assistant to the vice-president and assistant secretary of

the Pittsburgh & Lake Erie, with headquarters at Pittsburgh, Pa., has been appointed real estate and tax agent, with the same headquarters. He will also continue to act as assistant to the vice-president and assistant secretary. Mr. Brunner was born on July 24, 1881, in Allegheny, Pa. He entered railroad service in October, 1902, as stenographer and ticket clerk for the Pittsburgh & Lake Erie. The following year he was appointed voucher clerk in the general passenger department and in 1905 he became chief clerk to the vice-president and general manager. He served in the latter position until 1910, when he was appointed secretary to the vice-president. From July to November, 1918, he was assistant to the general manager. During federal control, Mr. Brunner served as assistant to the president and in March, 1920, he was appointed assistant secretary. In May of the following year he was also appointed assistant to the vice-president. Mr. Brunner's appointment as real estate and tax agent became effective March 1, 1929.

C. S. Pope, who has been elected secretary of the Minneapolis, St. Paul & Sault Ste. Marie, and the Duluth, South Shore & Atlantic, with headquarters at Minneapolis, Minn., has been connected with the Soo line for more than 8 years. He was born at St. Paul, Minn., June 1, 1896, and first entered railroad service in the summer of 1912 when he worked during vacation at the Como avenue shops of the Northern Pacific at St. Paul. After graduating from Central High School, St. Paul, in 1915, and spending two years at the University of Minnesota, Mr. Pope entered the service of the Great Northern as a clerk in the office of the auditor of freight receipts at St. Paul in January, 1917. In April



C. S. Pope

of the following year he enlisted in the Corps of Engineers of the United States Army, serving with the American Expeditionary Force from June, 1918, to June, 1919. Upon his return to civil life he was employed by a number of commercial firms in St. Paul until December 1, 1920, when he entered the service of the Soo Line at Minneapolis

as a clerk in the office of the auditor of disbursements. On October 1, 1923, he was advanced to chief clerk to the assistant comptroller and on February 1, 1924, he was transferred to the office of the comptroller, where he remained until January 1, 1926, when he was promoted to auditor of miscellaneous companies, with headquarters at Minneapolis. Two years later Mr. Pope was further promoted to assistant to the comptroller, a position he retains following his election to secretary of the Duluth, South Shore & Atlantic on February 26, and his election to secretary of the Soo line and the Wisconsin Central (a part of the Soo line) on February 27.

Operating

C. M. Trussell, assistant trainmaster on the Baltimore & Ohio at Akron, Ohio, has been promoted to trainmaster of the Chicago division, with headquarters at Garrett, Ind.

J. P. Harahan has been appointed assistant trainmaster of the Allegheny and Greenbrier sub-divisions of the Chesapeake & Ohio, with headquarters at Ronceverte, W. Va.

Traffic

W. A. Springall has been appointed industrial agent of the Southern Pacific Lines in Texas and Louisiana, with headquarters at San Antonio, Tex. He will have jurisdiction over San Antonio and vicinity.

W. C. Glynn, freight traffic manager of the Eastern region of the Pennsylvania, with headquarters at Philadelphia, Pa., has been appointed to the newly created position of assistant to the general traffic manager, with the same headquarters. **E. S. Neilson**, general foreign freight agent, at Philadelphia, will succeed Mr. Glynn as freight traffic manager. He will in turn be succeeded by **A. J. Ball**, general freight agent at Philadelphia. **V. P. Summerfield**, general freight agent, with headquarters at Philadelphia, has been appointed assistant freight traffic manager at that point. He will be succeeded by **W. McL. Pomeroy**, general freight agent at Pittsburgh, Pa.

Patrick J. McCarthy, who has been promoted to general freight agent of the Missouri Pacific, with headquarters at St. Louis, Mo., was born on February 24, 1873, at St. Louis. He entered railway service in 1892 on the St. Louis, Iron Mountain & Southern (now part of the Missouri Pacific) and from 1899 to 1902 he was connected with the Western Weighing & Inspection Bureau. Mr. McCarthy then returned to the Missouri Pacific as bill of lading clerk in the commercial office at St. Louis, being advanced successively through the positions of clerk and chief clerk in the general freight office during the period from 1907 to 1915. In the latter year

he was promoted to assistant general freight agent at St. Louis, his further promotion to general freight agent becoming effective on March 1

Engineering, Maintenance of Way and Signaling

C. O. Long, supervisor of track in the New York zone of the Pennsylvania at Trenton, N. J., has been promoted to assistant division engineer of the Fort Wayne division, with headquarters at Fort Wayne, Ind.

S. N. Crowe, division engineer of the Western division of the Wabash, with headquarters at Moberly, Mo., has been promoted to assistant chief engineer of the Western district, with headquarters at St. Louis, Mo. **O. A. Lewis**, assistant engineer at Moberly, has been promoted to division engineer of the Western division, succeeding Mr. Crowe.

G. T. Stanton, telegraph and telephone engineer of the New York Central, with headquarters at New York, has resigned from that position to become associated with the Electrical Research Products, Inc., New York, in the development of theater acoustics in connection with the manufacture of talking motion picture equipment.

Purchases and Stores

J. C. Hart, chief clerk in the office of the division storekeeper of the Chicago, Milwaukee, St. Paul & Pacific at Minneapolis, Minn., has been promoted to division storekeeper of the Iowa & Dakota and the Southern Minnesota divisions, with headquarters at Mason City, Iowa. **Harry L. Stamp**, local storekeeper at Harlowton, Mont., has been promoted to division storekeeper, with headquarters at Mobridge, S. D., succeeding **F. J. Kratschmer**, resigned. **E. F. Grisius** has been appointed division storekeeper of the Sioux City & Dakota division, with headquarters at Sioux City, Iowa, succeeding **G. F. Lake**, resigned.

Obituary

William Walker, who retired from active service as superintendent of shops of the Missouri-Kansas-Texas at Sedalia, Mo., on January 1, died at his home in that city on March 19. Mr. Walker had been connected with the Katy at Sedalia for 40 years.

Howard Stillman, retired mechanical engineer and engineer of tests of the Southern Pacific, with headquarters at San Francisco, Cal., who died on February 7, had been in the service of that railway and the Central Pacific for 50 years. He was born on September 24, 1855 and graduated from the College of Mechanics of the University of California in 1877. While attending the University of California, Mr. Stillman worked at various times as a chainman

on the Southern Pacific at Los Angeles, Cal., beginning in May, 1874. In 1877 he became an apprentice machinist in the Sacramento (Cal.) shops of the Central Pacific and from 1880 to 1888 he served as a draftsman at the same point. He was then promoted to master mechanic at Tulare, Cal., and in 1889 he was transferred to Dunsmuir, Cal., where he remained until 1893 when he was promoted to engineer of tests of the Southern Pacific, with headquarters at Sacramento. In 1905 Mr. Stillman's headquarters were transferred to San Francisco and in the following year he was in addition appointed mechanical engineer of the Southern Pacific. He retired from active duty in 1924.

Harvey Cullen Estep, railroad locating and construction engineer, connected with the construction of various northern trans-continental lines, died of heart failure, at Long Beach, Cal., on March 20. Mr. Estep was graduated from the University of Illinois in 1874. He was engaged in railroad location work for the Oregon Railroad & Navigation Company, now a part of the Union Pacific System, for a short period after which he was in charge of exploration and locating parties for the Northern Pacific transcontinental line between Missoula, Mont., and Spokane, Wash. In 1885 and 1886 he was resident engineer in charge of construction of the original line of the Northern Pacific through the Cascade Mts. Following this he was engaged in the construction of the Seattle terminals of the Northern Pacific and other railroad location work, including the Seattle Belt line east of Lake Washington. During the Spanish war he was division engineer in charge of construction on the Astoria & Columbia River (now a part of the Spokane, Portland & Seattle), then becoming principal assistant engineer of the Minneapolis & St. Louis. From 1905 to 1908 he was division engineer in charge of location and construction of the Chicago, Milwaukee, St. Paul & Pacific and in 1910 he became chief engineer of the Southern New England, a subsidiary of the Grand Trunk System, after which he retired from active railroad work.

THE GREAT WESTERN OF GREAT BRITAIN has recently added a registry feature to its freight service. Under the system patrons may, for an additional charge, register shipments between certain designated centers including most of the larger towns on the company's line.

On registered freight the railroad informs patrons of the date and time at which the shipment will be delivered and controls the movement so as to make the promised delivery according to schedule. The additional charge is equivalent of about 60 cents for each consignment registered. It is expected that the new service will be especially popular with those railway patrons who are required to fill special orders where an element of uncertainty in the time of delivery is a serious difficulty.